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Leading in Precarious Markets: Teacher Shortages and Organizational Stability in Schools

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Leading in Precarious Markets: Teacher Shortages and Organizational Stability in Schools

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Abstract

Leading in Precarious Markets: Teacher Shortages and Organizational Stability in Schools

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Teacher shortages are an ongoing problem in many state and local teacher labor markets. Research suggests teacher shortages are linked to state educational policies governing teacher salary, accountability, school funding, or teacher licensure and certification. Indeed, these policies can lead to a teacher shortage policy environment inducing teacher exit or discourage entry into the field.

Shortages have significantly reshaped teacher labor markets in recent years with states like Oklahoma at the forefront. However, less is understood about school leaders' sensemaking processes and actions in these environments, particularly as waves of teacher protest accompany shortages in many states. By exploring the teacher shortage landscape in Oklahoma, this study investigates school leaders' understanding of shortages and examines the human resource management practices used to recruit, hire, and organize teachers for long-term retention. Additionally, with little attention paid to

how school leaders make staffing decisions and set hiring priorities among various types of shortages, this study attends to shortages related to: (1) context-based shortages in schools serving students of color and low-income students; (2) the shortage of racially and ethnically diverse teachers; and (3) shortages in specific content or subject areas.

Drawing from an interdisciplinary theoretical approach inclusive of cultural political economy, precarity, and sensemaking perspectives, this study focuses on the state and local teacher shortage environments in which school leaders are embedded. The study uses an embedded, single case design and includes document analysis and semi-structured interviews with 25 school leaders as data sources.

Findings contribute to the field of educational leadership, teacher labor market studies, and education policy. Specifically, the study adds new conceptualizations of principals' recruitment and hiring practices in shortage contexts. Evidence shows principals developed various coping strategies and mechanisms to navigate teacher selection processes in this environment. As a driver of teacher shortages, the state's policy environment destabilized the local labor market in ways that significantly impacted school leaders' practices and their capacity to retain teachers. This research offers implications for schools experiencing inequitable distribution of teachers and chronic turnover as overall findings reveal the hidden effects of shortages on school leadership and organizational functioning.

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Reports of teacher shortages have dominated research and public discourse within the past few years, and, according to the U.S. Department of Education (2016), a record number of teacher shortages were reported in 2015-2016. Over 40 states had shortages in special education, math, and science, while 30 states reported shortages in bilingual education or English-as-Second Language (ESL). Although some have characterized the shortages as overblown or "mythical" (Gantert, 2015; Sand, 2017), others have described this challenge as one of "the biggest threats to schools" (Daniel, 2015). National data confirm these staffing challenges as researchers point to decreasing enrollment in teacher preparation programs and increasing job exit of current teachers as root causes for shortages (Ingersoll & May, 2016; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Furthermore, shortages will remain a labor market challenge as national projections suggest approximately 316,000 teachers will be needed by the year 2025 to meet demand (Sutcher et al., 2016). This study explores teacher shortages and the impact these challenges have on school leadership[1] practices.

Overview of Shortages in Teacher Labor Markets

Teacher shortages occur when demand exceeds supply and schools are unable to fill the desired number of positions. Deficits in supply are caused by several factors including, the

[1] I use the term school leader(s) broadly to refer to district and school-level administrators.

number of staff retained, the number of transfer candidates, as well as new and prospective entrants to the market. Teachers' preferences are an important indicator of market supply because their preferences dictate decisions about entering and exiting the workforce as well as where they choose to teach (Cannata, 2010; Engel & Cannata, 2011; Reininger, 2012). Pecuniary and non-pecuniary benefits, such as wages and benefits, work conditions, and job security also shape market supply. Like in other market sectors, factors such as a worker's race or ethnicity, age, and years of experience also influence labor supply and employability (D'Amico, Pawlewicz, Earley, & McGeehan, 2017; Milner, 2007). Conversely, market demand is defined by factors that determine the number of teachers districts wish to employ based on student enrollment trends, teacher-student ratios, teacher retention and attrition rates, as well as employers' perception of teacher quality (Behrstock-Sherratt, 2016; Boe & Gilford, 1992).

The economic theory for a true labor shortage suggests fewer available workers are willing to supply labor at the wages employers are willing to provide. Therefore, increasing wages should result in a tighter labor market as employers' demand for labor is met. Other explanations also suggest that, despite the presence of available workers, insufficiencies in the labor supply create shortages. In other words, there are key differences between quantitative and qualitative dimensions of worker supply in the labor force (Donitsa-Schmidt & Zuzovsky, 2016). As such, scholars studying teacher shortages usually agree that "quality, not quantity, should be the central focus of any teacher supply discussion" (Murphy et al., 2003, p. 4).

Although supply and demand equilibrium is an indication of a perfect or well-functioning labor market, studies show shortages are uneven across local teacher labor market (TLM) contexts. Indeed, differential supply and demand patterns produce acute levels of teacher shortages in local school districts that dictate *where* teacher shortages take place and *who* is most

affected (Allensworth, Ponisciak, & Mazzeo, 2009; Boyd et al., 2011; Carver-Thomas & Darling-Hammond, 2017; Guarino, Brown, & Wyse, 2011; Renzulli, Parrott, & Beattie, 2011). Schools serving low-income students and students of color, most often in urban districts, bear the brunt of teacher shortages and experience greater disparities in teacher quality distribution. In fact, students of color and low-income students are three to ten times more likely to have teachers who are uncertified, not fully prepared, or teaching outside their field of preparation than students in predominantly white and more affluent schools (Adamson & Darling-Hammond, 2012). Given the academic and social consequences of high teacher turnover on student achievement (Papay & Kraft, 2016; Ronfeldt, Loeb, & Wyckoff, 2013; Staiger & Rockoff, 2010), this dissertation is written from the stance that access to quality teaching and the distribution of well-qualified teachers is a matter of educational equity.

In addition to these supply and demand characteristics, educational policies at the federal, state, and local levels play a significant role in TLMs and the emergence of shortages (Rice, Roellke, Sparks, & Kolbe, 2008). Policy issues related to school funding, accountability, or school reform—factors generally associated with academic achievement or school performance—tend to be overlooked in terms of how they shape teachers' work decisions and behaviors. Consider that in states where significant reductions in state educational funding have taken shape (e.g., Oklahoma, Arizona, North Carolina, and Wisconsin), labor markets were disrupted by severe teacher shortages (Driscoll & Watson, 2014; Leachman & Mai, 2014; Rice et al., 2008) and state-wide teacher walkouts, protests, and resistant efforts.

States[2] govern various aspects of TLMs with regards to developing teacher certification and licensure requirements and standards, setting salary and wages, and establishing assessment

[2] Broadly defined as state education agencies, state boards, state legislatures, and state governors

systems for teacher evaluation (Emihovich, Dana, Vernetson, & Colon, 2011; Loeb, Miller, & Wyckoff, 2015). Given this authority, state-level policies can lead to a *teacher shortage policy environment* inducing teacher exit, and simultaneously, discourage teachers from entering the field. Conceptualizing this environment in previous research, Malen (2003) posited that "state policies operate to alter the workplace in ways that prompt reputedly capable and committed educators to exit the profession, they may be creating unintended effects that undermine rather than augment the ability of local schools to improve their performance" (p. 207). Despite Malen's (2003) conclusions, work on teacher shortages has largely overlooked the state context as an analytic site for shaping teachers' working conditions and behaviors.

This state policy environment also has direct impacts on school leadership because school leaders, like teachers, do not respond to or make sense of state policies in a vacuum (Kelchtermans, 2017; Spillane, Diamond, Burch, Hallett, Jita, & Zoltners, 2002; Wrabel, Saultz, Polikoff, McEachin, & Duque, 2018). For example, many Oklahoma school leaders were forced to cut staff and eliminate courses due to state policies that reduced school funding and expanded class size (Oklahoma State School Boards Association [OSSB], 2017). In other words, state policies that affect TLM dynamics with relation to teacher entry and exit also influence school leaders' roles as employers and hiring managers.

A common goal for all school leaders is to staff schools with well-qualified teachers. Yet in a state policy environment experiencing significant teacher shortages, it is not clear how school leaders make sense of this environment or how they engage with human resource management practices to recruit, hire, assign, or organize teachers for long-term retention. As such, this case study examined how school leaders made sense of and navigated the teacher

shortage policy environment in Oklahoma. In doing so, this dissertation contributes to an understanding of how state education policies influence TLMs.

Statement of the Problem

There is a deepening educator shortage problem in the United States. Shortages have been reported across multiple states and local school districts and remain an important policy concern given teachers' influence on student achievement (Hanushek, Kain, O'Brien, & Rivkin, 2005; Harris & Sass, 2011; Kane, Rockoff, & Staiger, 2008). This study addressed three main gaps related to teacher shortages and school leadership.

First, research consistently identifies three shortage areas in the teacher workforce: (1) a shortage of well-qualified teachers in schools, especially in schools serving mostly students of color and students with economic need; (2) a shortage of teachers in specific content areas; and (3) a shortage of racially and ethnically diverse teachers reflective of the student population (Anderson & Stillman, 2013; Borman & Dowling, 2008; Cochran-Smith, Cannady, McEachern, Piazza, Power, & Ryan, 2010; Guarino, Santibanez, & Daley, 2006; Ingersoll & May, 2012; Madkins, 2011). Despite the breadth of the teacher shortage literature, much of these studies ignore how different kinds of shortages play out within a given context. Though cursory references to different types of shortages are often mentioned in studies on teacher turnover (Borman & Dowling, 2008; Cochran-Smith et al., 2010; Guarino et al., 2006; Nguyen, 2018), we know little about how school leaders make staffing decisions and set hiring priorities among various types of shortages. Attending to this multiplicity is important because how researchers and policymakers define and diagnose types of shortages ultimately determines the solutions used as prescriptions. This study explored how school leaders navigated shortage contexts with relation to these three workforce gaps.

Shortages, Turnover, and Attrition: The Making of Critical Teacher Shortages

This work is situated in the broader literature on teacher recruitment, turnover, attrition, and retention. Teacher turnover is defined as the number of teachers who move between school districts and/or change positions (i.e., movers)[3]. On a national scale, turnover accounts for an estimated eight percent of teachers who move to different schools; while teacher attrition reflect an additional eight percent of teachers (approximately 90,000 teachers) who leave the profession annually (i.e., leavers) (National Council of Education Statistics [NCES], 2014a). Throughout the study, teacher turnover and attrition will be used as proxies for shortages because both processes lead to vacancies and affect recruitment and hiring.

When the degree and scale of teacher shortages exceed these baseline market trends for turnover and attrition, critical teacher shortages emerge. More specifically, I define a *critical teacher shortage* as an occurrence in the TLM when severe and multiple types of shortages lead to a combination of policy responses intended to minimize the number of unfilled positions and curb workforce gaps. Although research has yet to advance an empirical measure of a critical teacher shortage, I draw from various quantitative and qualitative studies (e.g., Adamson & Darling-Hammond, 2012; Allensworth et al., 2009; Johnson, Kraft, & Papay, 2012; Holme, Jabbar, Germain, & Dinning, 2018) to characterize teacher shortages in Oklahoma as a critical event. Few studies have explored school leadership practices in critical shortage environments.

Since 2014, Oklahoma has experienced a critical teacher shortage evidenced by high rates of teaching vacancies, downsized staff and teaching positions, increased class size, a heavy reliance on emergency certified candidates to fill vacancies, and district and school consolidation

[3] Data in this study primarily focused on traditional public school teachers in Oklahoma because charter school teachers make up a small percentage of the state teacher workforce. However, when disaggregated, OSDE (2018) report charter school teachers have the highest rate of educator turnover at 41.9%.

(OSSBA, 2017). Supply and demand data from the Oklahoma State Department of Education (OSDE) (2018) note 4,643 or 11.3 % of teachers left the profession in 2016-2017, and the percentage of combined turnover (movers and leavers) exceeds the national average at 23.6%. In fact, a cumulative total of 30,000 teachers left the Oklahoma teacher workforce in the past six years (OSDE, 2018).

The uptick in shortages resulted in the creation of a statewide policy taskforce that proposed a series of policies or "policy package" (Rice et al., 2008) to tackle the state's teacher shortage problems. Although other states experienced similar labor market challenges and drastic cuts in education funding (Cano, 2018; Driscoll & Watson, 2014; Leachman & Mai, 2014), teacher shortages in Oklahoma were noteworthy for three reasons. First, state policies deregulated teacher entry which led to a significant increase in the number of emergency certified teachers hired to meet demand. Secondly, as previously noted, the state lost more teachers than it produced as high rates of teacher attrition and mobility out of the state presented concerns for policymakers, teacher preparation programs, and school leaders. Finally, with political momentum from the teacher strikes in West Virginia during February 2018, a nine-day teacher walkout followed in Oklahoma, which also catalyzed similar movements in other states. Taken together, these factors complicated the dynamics between the state policy environment and how school leaders function as human resource managers within local TLMs.

Deregulating teacher entry in critical shortage environments: A problematic policy response. When labor market shortages exist, states and local districts use a range of policies to increase teacher supply and promote teacher retention. These initiatives might include offering incentives or raising teacher compensation (Aragon, 2016; Feng & Sass, 2018; Springer, Rodriguez, & Swain, 2016), education and training programs (Cochran-Smith & Villegas, 2015;

Mungal, 2015), or school restructuring efforts that seek to lower cost and distribute teachers more effectively (Firestone & Pennell, 1993; Horng, 2009; Johnson et al., 2012; Kersaint, Lewis, Potter, & Meisels, 2007; Ladd, 2011). However, despite these options, changing entry requirements by deregulating teacher licensure is typically the first response enacted by state agencies (Behrstock-Sherratt, 2016). A similar policy response to teacher shortages in the 1980s resulted in the proliferation of alternative teacher certification pathways (Grimmett & Young, 2012; Mungal, 2015), which one on hand, created greater opportunities for non-traditional teachers and teachers of color to enter teaching (Gist, 2016; Madkins, 2011), but produced other consequences that changed teacher policy development, student achievement, and workforce retention (Ballou & Podgursky, 2000; Cochran-Smith & Fries 2001; Darling-Hammond, 2000; Gorski, 2008; Kretchmar, Sondel, & Ferrare, 2016; Kumashiro, 2010). These policies also shifted the discourse on teacher professionalization, which, some argued, made teaching a less desirable job choice (Apple, 2006; Zeichner, & Pena-Sandoval, 2015).

The theory of action suggests teacher supply will increase when states authorize supply-side policies that loosen entry requirements. However, researchers note that "relatively little is known about how licensure requirements affect the supply of high-quality teachers or which teacher candidates would be hired under licensure policies" (Dee & Goldhaber, 2017, p. 10). In essence, how might these deregulatory policies impact school leaders' hiring decisions? If, as Mason and Schroeder (2010) suggest, hiring qualified, exceptional staff is "the single most important task of a principal" (p. 18), then research must attend to school leaders' hiring practices in contexts of critical shortages where these supply-side policies are most often employed. To address this gap in research, this study investigated school leaders' perceptions of the state policy environment as well as their hiring decisions in critical shortage environments.

School Leadership in Contexts of Shortages

Despite its importance in school leadership, recruitment and hiring represent only part of the staffing process. Indeed, scholars applying different lenses to school leadership like human capital and resource management (Donaldson, 2013), systems thinking (Minarik, Thornton, & Perreault, 2003), and culturally responsive school leadership (Khalifa, Gooden, & Davis, 2016) agree that hiring, while critical, is only one component of effective school leadership. Other components of effective instructional leadership include teacher placement, evaluation, promotion, and developing teachers' skills. Indeed, research suggests these, and other forms of school leadership can positively affect job satisfaction, productivity, and retention (Allensworth et al., 2009; Boyd et al., 2011; Johnson et al., 2012; Marinell & Coca, 2013; Ladd, 2011; National Center for Educational Statistics [NCES], 2014; Sutcher et al., 2016). Put simply, administrative support and negative work conditions within schools are primary drivers of teacher attrition or turnover. However, most existing studies on school leaders' organizational practices do not make clear the labor market conditions in which school leaders operate. By emphasizing the organizational dimensions of teacher shortages, this study also addressed how school leaders work to organize schools to promote retention.

In sum, current theories and empirical research on school leaders' human resource management practices offer little evidence on how these practices play out in critical teacher shortage environments. As such, I asked the following research questions:

1. For school leaders working in contexts of teacher shortages, how do they understand these challenges and what factors do they attribute to shortages?
2. How do these perceptions influence school leaders' recruiting and hiring decisions?

a. How and in what ways do school leaders navigate different types of shortage gaps?

3. What organizational strategies do school leaders use to reduce shortages and retain teachers?

Overview of Conceptual Framework

This study underscored dynamics between micro-level decision making within schools and the macro-level state context influencing those decisions. To conceptualize this relationship, I anchored this study in cultural political economy as a guiding framework. Cultural political economy rejects singular explanations of policy problems and instead insists on complexity (Dumas & Anderson, 2014; Jessop & Oosterlynck, 2008; Weaver-Hightower, 2008). Departing from rationalist perspectives inherent to political economy, cultural political economy views economic objects—like teacher labor markets—as socially constructed, historically specific, and socially embedded (Jessop & Oosterlynck, 2008). Indeed, as Wrabel et al., (2018) noted, "education policies are not developed in apolitical environments (p. 134)." Thus, a frame of cultural political economy takes into account the broader institutional contexts and factors shaping TLMs.

Pressures and forces from the state policy environment can also elicit varying degrees of precarity, or uncertainty, in the TLM. Paralleling the rise of neoliberalism, theoretical notions of precarity emphasize several key tenets: the reconfiguration of work and employment characterized by the 'financialization' of the economy, the rise of the service sector, deregulation, and rapid technological shifts (Kalleberg, 2009, 2011). I drew on core themes of precarity to argue that TLMs, and the field of teaching more broadly, have undergone similar political and economic transformations. In particular, I argued that the teacher shortage policy

environment fostered a state of precariousness[4] within Oklahoma's TLM evidenced by school leaders' sense of uncertainty about their efforts to recruit, hire, and retain teachers.

Still, cultural political economy and the concept of precarity are broad, encompassing frameworks. Therefore, I incorporated Weick's (1995) micro-level sensemaking framework as a conceptual bridge to: (1) increase the explanatory power of these broader, macro-level concepts (Spillane et al., 2002) and (2) reduce theoretical complexity by centering school leaders' everyday practices. Sensemaking perspectives illuminated the multiple ways school leaders interpreted and responded to policy messages or cues coming from the state. Furthermore, by emphasizing precarity as a condition of the labor market, sensemaking perspectives afforded me a unique lens to analyze how school leaders made sense of unexpected events—a key feature of sensemaking theory. The Oklahoma teacher strike, which emerged as a crucial and unplanned event in this case study, produced varying degrees of uncertainty for school leaders. With these concepts in mind, the next section briefly outlines the methods, data collection, and modes of analysis used in the study.

Overview of Methods and Data Analysis

I used a qualitative approach, and specifically an embedded, single case design (Yin, 2013) to explore critical teacher shortages and school leaders' practices within these environments. An embedded case study allowed me to explore Oklahoma's state policy context, while illuminating school leaders' decisions and practices at the local level. A key advantage of an embedded case design is the ability to embed multiple units of analysis within a single case for extended investigation (Yin, 2013). In other words, while the case or bounded entity in this

[4] It is beyond the scope of this study to theorize the underpinnings and intellectual debates on precarity and precarious work (e.g., Standing, 2011; Vosko, 2010; Wilson & Ebert, 2013)

study was a local teacher labor market, the case's embedded units comprised four school districts within the labor market.[5]

Case study design also allows researchers to collect multiple forms of data to fully understand a particular phenomenon and create a trustworthy study. Data were collected across two phases. Phase one of the study consisted of a document analysis to explore teacher workforce trends beginning in 2014—a period marked by significant increases in state-issued emergency teacher certificates. Documents primarily included media reports from two local newspapers, but key organizational reports, white papers, and policy evaluations were also analyzed. In phase two, I conducted semi-structured, open-ended interviews (n= 25) with school leaders. (Two of the 25 interviews were with district administrators, 23 interviews were with school principals and assistant principals). All interviews followed a protocol and incorporated informal, open-ended, and structured questions (Kvale & Brinkman, 2009; Patton, 1990) (See Appendix A, Interview Protocol).

Data analysis occurred simultaneously with data collection. I used the qualitative software program NVivo to store, manage, and organize all data after documents were collected and interviews were transcribed. All data were coded using a hybrid approach where I derived codes deductively from the literature and refined the codes throughout the research process to aid in definitional clarity. I also used inductive approaches to analyze the data from a combination of various coding techniques (i.e., descriptive, InVivo, process, or values coding) to reflect the participants' values, actions, or ideas as well as information about the district context (Miles, Huberman, & Saldaña, 2014). Additionally, I wrote short analytic memos to map the policy

[5] Three of these districts were located in the same county, but all were located in the same city. Compared to other states, Oklahoma has a large number of districts (512 school districts in academic year 2018-2019), so the case in this study—a local TLM—make up four, densely located school districts in the geographic area.

context and used elements of content analysis by organizing information into categories related to the research questions as well as thematic analysis by identifying patterns within the data (Bowen, 2009). To further increase the trustworthiness of the study and allow for an iterative process that strengthened both the methods and the results, I triangulated the data across multiple sources (documents and interviews) and applied techniques for validity and trustworthiness (i.e., member checking, rich description of the case context, and detailed note taking throughout the research process) (Bogdan & Biklen, 1998).

Finally, it is important to acknowledge the scope and limitations of this study. Like all research, there are both delimitations and limitations. First, the study used a qualitative design and employed a non-probability sample, which cannot be generalized to other contexts and TLMs. Though generalizability was not a goal of this research, the broader phenomena being studied—school leaders' human resource activities in teacher shortage environments—reflect conditions in many districts and schools, therefore, findings can be translated to other contexts experiencing similar staffing challenges. In fact, as a delimitation, the embedded, case study design comprised of four sample districts meets Yin's (2013) case study replication logic, which ultimately strengthens the reliability and validity of the research.

Secondly, an important aim of the study was to examine hiring priorities in shortage contexts with different types of shortages. But the significant lack of diversity in Oklahoma's TLM and, specifically, within the case, undermined these empirical efforts. Still, findings from this work can inform future research and theory building on principals' hiring practices with relation to teacher diversity. Finally, it is important to acknowledge that a study of teacher shortages without the voices of teachers is a limitation itself. Although school leaders in this study overwhelmingly empathized and understood the challenges teachers experienced, school

leaders do not occupy the same labor status as teachers and therefore, are impacted differently by state teacher policies and working conditions. Future work might address these limitations.

Understanding Key Terms

I previously offered a definition of critical teacher shortage as a severe and chronic shortage of teachers leading to a combination of policy responses intended to curb workforce imbalance. Teacher shortage, while related to teacher turnover and attrition, indicate market conditions when supply falls short of demand. Research suggests teachers' entry and exit decisions are moderated by different factors influencing when and where teachers move schools (Freedman & Appleman, 2009; Podgursky, Monroe, & Watson, 2004). Although a quantitative measure or threshold for critical teacher shortages has yet to be identified in the literature, I used the national average of eight percent turnover and attrition rate as a baseline indicator (NCES, 2014) supported by other research suggesting attrition rates of 30% to 50% might indicate a level of critical shortage (Darling-Hammond & Sykes, 2003; Ingersoll, 2001).

Additional terms not directly used within the research questions, but are important in the context of the study relates to pathways for certification. Deregulating teacher certification was a key policy response in addressing teacher shortage, as such, it is important to outline pathways to teacher certification in Oklahoma. According to the Oklahoma State Department of Education (2014), there are four pathways to become a certified teacher:

1) Traditional Path - The path for those who complete a state-approved teacher education program
2) Alternative Path - The path for those with a minimum of a bachelor's degree in any area, but did not complete a state-approved teacher education program

3) Other Non-Traditional Path - The path for American Board for Certification of Teacher Excellence (ABCTE), Teach for America, Paraprofessional, Special Education Non-Traditional
4) Emergency Certification - The path used to certify teacher candidates at the request of a school district administrator and must be approved by the State Board.

Study Significance and Policy Implications

This study contributes to the field of educational leadership and policy, teacher labor market studies, and the politics of education and education policy. As demonstrated by the headlines noted at the beginning of this chapter, media articles and public commentary on the extent of shortages in Oklahoma has far outnumbered empirical research. Though some of these articles add to the discourse on teacher shortages, this study offers empirical knowledge about the impact of shortages on school-level processes. Indeed, as Kelchtermans (2017) argues, workforce challenges like teacher shortages, turnover, or attrition cannot properly be understood by "merely considering it as a matter of individual characteristics, nor by treating it as entirely determined by organizational and institutional dynamics" (p. 966). Furthermore, this study is in line with recent work analyzing state trends in supply and demand (Berg-Jacobson & Levin, 2015; Hendricks, 2015; Lindsay, Wan, Berg-Jacobson, Walston, & Redford, 2016) as well as localized analyses of TLMs (Boyd et al., 2005a; Cannata, 2010; Engel & Cannata, 2015; Killeen et al., 2015).

As a nested study of teacher shortages, findings illuminate how a state's policy environment can significantly impact school leaders' practices and their capacity to retain teachers. Specifically, findings support Malen's (2003) assertion that the state policy environment is an important component of developing a broader understanding of teachers'

working conditions. Drawing on principals' sensemaking, principals understood or attributed numerous state policy factors such as salary and compensation, limited school funding, increasing class size, and teachers' diminished value as drivers of teacher shortages.

This study also adds new conceptualizations of principals' hiring practices as principals developed various coping strategies and mechanisms to navigate the teacher selection process. Oklahoma's teacher shortage was so widespread that most school districts—irrespective of size and location—were impacted by staffing challenges across the state. Thus, the second key finding illustrates that shortages destabilized TLMs in various ways and sheds light on the hidden effects of shortages on school leadership and organizational functioning. For example, critical shortages led to new organizational challenges that changed the makeup of a school's staff prompting principals to adopt multiple organizational responses. Additionally, shortages weakened principals' hiring signals forcing school leaders to use hiring practices that were previously unidentified in the literature. Finally, this study adds to theoretical notions of precarity in school leadership by highlighting school leaders' challenges when navigating critical teacher shortage contexts. The following chapter presents a review of the literature as well as the conceptual framework.

CHAPTER TWO: LITERATURE REVIEW

Chapter Overview

Comprehensive reviews of the research literature on teacher shortages and turnover indicate shortages strain schools of economic, human, and social resources (e.g., Borman & Dowling, 2008; Johnson, Berg, & Donaldson, 2005; Madkins, 2011; Nguyen, 2018). Building on this work, the first section of the chapter disaggregates types of teacher shortages and explores why teacher shortages remain an ongoing problem. I also reviewed research on teachers' entry and exit decisions to account for push and pull factors that drive shortages.

A second strand of literature explores the role of state and local policy actors' influence on the TLM. Four main policy areas are highlighted: salary and incentives, accountability, school finance, and teacher certification and licensure. Following this discussion, I highlight district and school-level actors' role in making staffing decisions in shortage environments by drawing from organizational, management, and school leadership literatures. Importantly, this research also emphasizes how school leaders might achieve organizational stability to create the conditions for teacher sustainability and retention in contexts of shortages. Within each strand of research, I discuss major findings and gaps in the literature.

Finally, the chapter concludes with a discussion of the conceptual framework used to guide the study. I explain why I used cultural political economy as an encompassing theoretical lens, supported by the socio-economic concept of precarity to discuss how deregulation, the politics of education funding, and other neoliberal shifts in education lead to aspects of precarity in the TLM. While cultural political economy and the notion of precarity are useful theoretical frames for understanding teacher shortages at the macro-level, I also apply sensemaking perspectives as a complementary analytic. As a micro-level theory, sensemaking affords a lens to

consider how school leaders make sense of the state policy environment and how this environment impacts school level practices.

Literature Search

To identify work within these strands of literature, I gathered conceptual as well as empirical research from scholarly databases such as: Psychological Abstracts Sage, EdWeek, Lexis Nexis, Web of Science, Google Scholar, Education Resource Information and Center (ERIC), Proquest Dissertation and Theses, EBSCO, Wiley Online Library, Dissertation Abstracts, PsycINFO, Wilson Index, and SAGE. In addition, I conducted ancestral searches by examining reference lists and previous reviews of the teacher retention and attrition literature (Borman & Dowling, 2008; Guarino, et al., 2006; Johnson et al., 2005; Madkins, 2011; Nguyen, 2018). Given the ebb and flow of teacher shortages in the national teacher workforce as well as the shifts in the national teacher policy landscape, I limited the search to studies conducted after 2000.

Research in the field of teacher shortage, turnover, and attrition is vast. I located approximately 20,000 records using the following search terms in each major category: (1) *teacher shortages* - teacher shortages, teacher labor market, teacher attrition, teacher retention, school OR teacher turnover, teacher staffing OR vacancy; (2) *teacher labor market* - teacher supply AND/OR demand, teacher preferences; (3) *teacher hiring* - principal OR school OR district hiring; human capital OR resource management; teacher selection. After an initial screening of abstracts, I limited the search to approximately 150 articles or pieces of research using the following criteria: (1) the study was published in a peer-reviewed journal since 2000 and (2) addressed one of the literature strands identified for this review. Additionally, due to the breadth of research on this topic, I excluded work with cursory references to teacher shortages

(or teacher supply and demand) without any strong analysis or insight on school leadership or hiring practices. Next, I begin the review by discussing literature on types of teacher shortages.

Types of Teacher Shortages

Research and policy often aggregate the teacher shortage problem as a singular phenomenon although literature on teacher labor shortages pinpoint three main shortage gaps: (1) a shortage of well-qualified, well-prepared teachers, especially in schools serving mostly students of color and students with economic need; (2) a shortage of well-qualified, well-prepared teachers in specific content or subject areas; and (3) a shortage of racially and ethnically diverse teachers who reflect the diversity of the student population (Anderson & Stillman, 2013; Borman & Dowling, 2008; Cochran-Smith et al., 2010; Guarino et al., 2006; Madkins, 2011). Although these gaps tend to overlap in many urban and rural schools, I disentangle these unique challenges because each has different consequences on the local TLM as well as implications for how school leaders make hiring decisions.

Geographic Shortages in Urban and Rural Schools: A Matter of Quality and Context

There is a strong association between teacher shortages and locational characteristics of schools. Students in urban schools with higher racial and ethnic diversity and economic need are more likely to attend schools with more staffing challenges. Teachers in these school contexts are also more likely to be uncertified or under-certified (via provisional, temporary, or emergency certificates), lacking effective and quality preparation, or teaching outside their field of preparation than teachers in predominantly white and more affluent schools (Adamson & Darling-Hammond, 2012; Allensworth et al., 2009; Boyd et al., 2011; Carver-Thomas & Darling-Hammond, 2017; Guarino et al., 2011; Renzulli et al., 2011). Similar disparities exist in rural or rural-fringe schools (Brownell, Bishop, & Sindelar, 2018; Goff & Bruecker, 2017),

although fewer studies explore how factors like turnover, attrition, and retention play out in these contexts, particularly as researchers push against a rural monolith (Theobald, 2005).

Student demographics and school location are salient factors influencing teachers' work decisions. In studies investigating teacher quality and teacher turnover, researchers find that, despite teacher quality, teachers leave urban schools at higher rates than they leave other schools (Boyd et al., 2005, Boyd, Lankford, et al., 2011; Hanushek & Rivkin, 2012; Hughes, 2012; Loeb, Kalogrides & Horng, 2010; Watson, 2011). Preferences for working in perceived "easier-to-serve schools"—schools with higher levels of student achievement and lower proportions of low-income students and students of color—explain teacher migration away from and out of urban schools. Researchers identify this phenomenon as "shifting" and "drifting" as teachers begin their careers in urban schools, but shift to non-urban schools (Freedman & Appleman, 2009; Olsen & Anderson, 2007). These ongoing staffing challenges contribute to the teacher churn evident in much of these school settings.

On the other hand, some large-scale studies examining the extent to which student demographics drive mobility instead identify school leadership and school climate as stronger predictors of teacher turnover or attrition (Allensworth et al., 2009; Boyd et al., 2011; Ladd, 2011; Marinell & Coca, 2013; White, 2018). Johnson, Kraft, and Papay (2012) observed, "teachers who leave high poverty, high-minority schools reject the dysfunctional contexts in which they work, rather than the students they teach" (p. 4). This body of research maintains school organizational characteristics matter. Variables such as school resources, school size, administrative support, teacher autonomy, collaboration and teacher networks, and professional development (e.g., induction and mentoring programs), and opportunities for advancement are key determinants that reduce teacher turnover in urban (or rural) settings.

Research has also identified multiple consequences of shortages and teacher turnover/attrition. From an organizational perspective, shortages and turnover in schools reduce organizational memory, disrupt pathways for teacher leadership, and minimize strong ties to parents and communities (Bryk et al., 2010; Holme & Rangel, 2012; Simon & Johnson, 2015). Furthermore, the economic costs associated with this mobility accumulate at the state, district, and school-levels as school leaders invest in the recruitment, hiring, and training of new teachers (Barnes, Crowe, & Schaefer, 2007). For example, teacher attrition costs in Oklahoma are estimated as low as $13,503,910 to a high of $29,393,047 (Alliance for Excellent Education, 2014). Equally important, research suggests students, and particularly students of color in lower achieving schools, bear economic costs of shortages with negative impacts on student achievement and performance (Papay & Kraft, 2016; Ronfeldt et al., 2013; Staiger & Rockoff, 2010).

Content or Subject-Area Shortages

Teacher shortages in specific subject areas such as science, technology, engineering, and math (STEM), special education, or bilingual education or ESL reflect another persistent teacher shortage gap. Indeed, two decades of federal level data consistently identify STEM, special education, and bilingual education as critical areas of need (Boe, Cook, Bobbitt, & Terhanian, 1998; Ingersoll & May, 2012; Sutcher et al., 2016; USDOE, 2016a). Supply projections should concern policymakers as teachers in these subject-area fields are all predicted to turnover at higher rates than general elementary teachers at 37%, 46% and 87% respectively (Carver-Thomas & Darling-Hammond, 2017).

Yet few studies explore how school leaders prioritize decisions about hiring, recruitment, or retention when various subject-area shortages exist within schools. One exception is Liu et

al.'s (2008) study of staffing practices for math secondary school teachers in urban districts. Researchers found principals engaged in "fierce competition" for "effective supply" (i.e., the number of candidates who were viewed as acceptable). Given earlier findings indicating that lower resourced, urban schools and districts tend to hire at later dates (Liu & Johnson, 2006), timing and competitive effects within the TLM may disadvantage urban schools from attracting high quality teachers in these fields. Two additional factors also exacerbate content-area shortages in low-income schools: (1) turnover rates for mathematics and science teachers are greater in Title I schools (17.8%) than in non-Title I schools (10.5%) and (2) mathematics and science teachers are more likely to be alternatively certified with fewer courses and less clinical experience in the subject (Carver-Thomas & Darling-Hammond, 2017).

School districts also struggle to recruit and retain qualified special education teachers across a range of subfields. Studies show special education teachers leave the field at almost twice the rate as general education teachers and are typically replaced by teachers with less experience or someone who may lack full qualifications to teach students with disabilities (Bettini, Walraven, Billingsley, & Williams, 2018; Hagaman & Casey, 2017; McLeskey & Billingsley, 2008; Sutcher et al., 2016). This trend has remained stagnant for decades as Mcleskey, Tyler, and Flippin (2004) noted more than 30,000 special education positions were filled by uncertified teachers in the 1990s. Hiring uncertified teachers or lowering standards for entry, particularly for teachers serving students with special needs, create a number of unintended consequences that undermine long-term retention, partnerships for co-teaching, or systems that promote inclusion and integration. While some states have taken steps to ensure adequate preparation and certification (California Statewide Task Force on Special Education, 2014), other states like Oklahoma and Arizona face tremendous challenges preparing an

adequate supply of special education teachers. Furthermore, racial and ethnic disproportionality in special education is, in part, linked to the underrepresentation of special educators of color (Bettini et al., 2018; Ford, 2012).

Similarly, the rapid increase in linguistically and culturally diverse immigrant and nonimmigrant children composing "the new demography" of students (Gándara & Mordechay, 2017) has also led to increased demand for bilingual, bi-cultural, or bi-literate teachers (Uro & Barrio, 2013). Studies on bilingual teachers' labor decisions (i.e., why they enter, stay, move, or leave teaching) is limited (see Gold, 1992; Sakash & Chou, 2007), but some researchers identify state policies for licensure and certification exams that require advanced writing and speaking language proficiency as barriers for potential bilingual education teachers (Arroyo-Romano, 2016; Guerrero & Guerrero, 2009). Relatedly, the recent enforcement of immigration policies like the rescission of the Deferred Action for Childhood Arrivals (DACA) program may further decrease the number of linguistically diverse teachers in the workforce as teachers' citizenship status remains contested (Zong, Soto, Batalova, Gelatt & Capps, 2017). Sanchez, Freeman, and Martin (2018) also highlight ways in which these policies negatively shape the experiences of public school educators and contribute to stressful working conditions that may affect teacher entry and attrition.

A Shortage of Racially and Ethnically Diverse Teachers

The third workforce gap addresses the underrepresentation of racially and ethnically diverse teachers in the workforce. Diversifying the educator workforce has long been a concern among scholars who recognize the detrimental labor market impact of the *Brown v. Board* (1954) decision on work opportunities for educators of color (D'Amico et al., 2017; Madkins, 2011; Tillman, 2004). The rapid demographic shifts in schools has sharpened the racial

and ethnic mismatch between students and teachers (Gershenson, Hart, Lindsay, & Papageorge, 2017; USDOE, 2016b).

Studies show the teacher labor force trails far behind the student population with approximately 17% of educators identifying as teachers of color (Carver-Thomas & Darling-Hammond, 2017; Ingersoll & May, 2016). At the same time, students of color who identify as Latinx (27.6%), Black (15.1%) and Asian/Pacific Islander (5.3%) make up a greater share of total school-age enrollment, than white students (47.9%) (NCES, 2018). Intersectional lenses also call attention to the underrepresentation of Black and Latinx male teachers who, together, make up approximately four percent of the teaching population (NCES, 2016; Bristol, 2018) as well as other ethnically diverse teachers of color who are similarly underrepresented (Chow, 2017; Endo, 2015; Lees, 2016; Rong & Preissle, 1997). In response to these disparities, federal policies have urged "a need to act" (USDOE, 2016b) as state and local actors adopt policy measures for teacher diversity and equity.

Beyond numerical parity, teachers of color add significant value to the workforce and contribute to schools in numerous ways. Increasing and retaining the number of teachers from racially and ethnically diverse backgrounds prove to: (a) positively change student and school outcomes (Gershenson et al., 2017; Gershenson, Holt, & Papageorge, 2016; Goldhaber et al., 2015 Villegas & Irvine, 2010); (b) increase attendance rates for students of color (Achinstein et al., 2010); (c) enable students of color to advance and enroll in more rigorous coursework (Emdin, 2016; Eddy & Easton-Brooks, 2011; Egalite, Kisida, & Winters, 2015); and (d) minimize the number of Black and Latinx students referred to special education (Bettini et al., 2018; Grissom & Redding, 2016). The presence of male teachers of color in schools, for instance, disrupts zero-tolerance school discipline practices that facilitate the school-to-prison

pipeline and racialized pathologies of students of color (Martino & Rezai-Rashti, 2010; Monroe, 2009). Administrators who understand and value these contributions will enact anti-racist and culturally responsive leadership practices to foster inclusive work environments, while prioritizing the recruitment and retention of diverse staff (Khalifa et al., 2016).

Confronting policies and practices that facilitate racial and ethnic mismatch between students and teachers in schools is an important component of human resource management. Whether these policies include market-based reform strategies that displace teachers of color (White, 2016) or district assignment policies that contain or segregate teachers of color in schools with poor working environments, less resources, and inadequate professional development (Bristol, 2018; Buras, 2011; Frankenberg, 2009; Kohli, 2018), studies show school leaders play an important role in teacher diversity efforts. Policy intervention is needed at various levels to understand why teachers of color are leaving the field at exorbitantly high rates. In fact, national data show teachers of color have entered and exited the workforce at higher rates than white teachers (Ingersoll & Merill, 2017). The cultural gap between students and teachers will continue to grow and negatively impact students' academic and social outcomes if targeted responses are not aimed at addressing racial and ethnic mismatch in schools.

Summary: shortage gaps. This section discussed three types of shortage gaps commonly identified in the TLM. Disentangling teacher shortage gaps help to identify staffing problems more concretely as targeted solutions are developed to strengthen recruitment and retention in teacher shortage contexts. Furthermore, attending to these shortage gaps signals the need for more defined framing of 'the shortage problem.' Research producing a coherent and comprehensive analyses of multiple shortage types will generate new insight on how shortages play out in different contexts and under the presumed neutrality of the labor market (D'Amico et

al., 2017; Milner & Howard, 2013). Additionally, acknowledging these shortage gaps raises an important question: how might hiring managers respond to shortages differently within this market? However, in order for school leaders to take deliberate steps to increase supply and mitigate turnover or attrition in schools, it is necessary to understand why these shortages occur.

Explanations for Teacher Shortages

Numerous factors affect teacher labor supply and, as Rice et al., (2008) noted a multi-dimensional approach is useful to "understand the array of strategies and investments in place to influence staffing" (p. 516). Rice et al., (2008) present a three-dimensional typology of the teacher policy landscape—state, district, and school-level policies influencing teacher entry, mobility, and retention. Their typology is a useful tool to emphasize how policies across the teacher policy landscape might enable or constrain different staffing problems and how policy actors at each level engage with these policies to address teacher shortage. The following discussion draws on this typology as a heuristic to situate the literature on causes for teacher shortages.

Entry Decisions and Teachers' Preferences

Entry decisions, or why teachers choose to pursue teaching, and the factors that motivate or attract teachers to the profession, is a critical component of understanding trends in teacher shortages. Teachers are highly motivated by a range of intrinsic factors inherent to teaching like the ability to serve others, work with youth, and advance social justice in schools (Achinstein et al., 2010, 2011; Dilworth, 2018; Firestone & Pennell, 1993; Sun, 2018). Extrinsic factors, like salary and wages, also influence entry decisions. A large-scale study using over three decades of administrative data from North Carolina found higher salaries increase teachers' attraction to and duration in the field (Murnane & Olsen, 1990). More recent studies support these earlier findings

on the effect of salary and incentives (Clotfelter, Glennie, Ladd, & Vigdor, 2008; Imazeki, 2005; Kolbe & Strunk, 2012). Adopting policies to modify teacher salary schedules might seem an obvious solution to increasing teacher supply, but findings on salary modifications have been inconsistent with regards to recruitment and retention—regardless of the incentive's size or duration (Clotfelter et al., 2008; Feng & Sass, 2018; Hough, 2012; Springer et al., 2016). In turn, exploring a combination of pecuniary and non-pecuniary rewards based on teachers' preferences might provide greater clarity about factors that drive entry and exit decisions leading to shortages.

Both intrinsic and extrinsic variables play a role in teachers' decisions and commitment to teach. Among teachers of color, for example, researchers identify barriers to entry that include: the social status of teaching, negative educational experiences in school, limited cultural autonomy or social justice practices, as well as the economic costs associated with the average teacher salary (Achinstein et al., 2010, 2011; Dilworth, 2018; Endo, 2015; Farinde, Allen, & Lewis, 2016; Sun, 2018). Studies using more cognitive frames like ''Factors Influencing Teaching Choice'' (FIT-Choice) also suggest mismatch between initial expectations versus rewards (i.e., salary) and demands of the job negatively impact entry or increase early career attrition (Watt & Richardson, 2007).

Teacher shortages are also predicated, in part, by teachers' preferences. Teachers prefer to teach in contexts that are similar—or at least, familiar—to contexts where they are from (Boyd et al., 2005). Recent studies confirm Boyd et al.'s (2005) seminal findings regarding the extent to which teachers value familiarity in first-time teacher job selection (Cannata, 2010; Reininger, 2012; Zhang & Zeller, 2016), when searching or applying for jobs (Engel & Finch, 2014), and even preferences for how prospective teachers choose schools for teacher training (Krieg,

Theobald, & Goldhaber, 2016; Watson, 2011). Teachers also value and prefer schools with positive working and organizational conditions related to administrative support, facilities and resources, school culture (e.g., values, norms), career advancement, and professional learning opportunities, etc. (Borman & Dowling, 2008; Boyd et al., 2011; Horng, 2009; Ingersoll, 2001; NCES, 2014, Simon & Johnson, 2015; Torres, 2016).

On average, traditional public-school teachers also prefer working in schools with fewer students of color and low-income students (Hanushek & Rivkin, 2012; Loeb et al., 2010), but as previously noted, there is some inconsistency in the literature about which of these factors—student demographics or working conditions—correlate more with turnover and attrition. Some researchers find poor work environments lead to higher mobility in schools with more students of color and low-income students (Boyd et al., 2011; Johnson et al., 2012; Ladd, 2011), while others, using large-scale statistical analyses of actual turnover decisions identify relational aspects of school working conditions, such as collegial relationships, collaboration among teachers, and trust as prominent features that push teachers out of the profession (Bryk & Schneider, 2002; Kohli, 2018; Marinell & Coca, 2013; Simon & Johnson, 2015).

Teachers' Exit Decisions

Understanding why teachers leave is equally important to addressing shortages because teachers' preferences and entry decisions are not necessarily governed by the same factors. Data capturing why teachers leave are mixed (Borman & Dowling, 2008; Madkins, 2011; Johnson et al., 2005). Some studies identify the lack of teacher autonomy as a significant determinant of turnover (Ingersoll & May, 2012) induced by testing and accountability sanctions that enhance standardization in teaching (Ball et al., 2012; Darling-Hammond & Sykes, 2003). A smaller percentage of teachers cite personal decisions regarding retirement, family or child-rearing

needs, as well as other employment opportunities (Carver-Thomas & Darling-Hammond, 2017; Kersaint et al., 2007). As previously discussed, salary and benefits are commonly reported as factors of turnover or attrition, especially when salaries are not commensurate to teachers' experience and expertise.

Push factors that lead to turnover and attrition are often associated with school context, leadership, and school organizational conditions that drive teacher shortages. A rich body of both qualitative and quantitative studies support the conclusion that school leadership matters (Allensworth et al., 2009; Boyd et al., 2011; Brown & Wynn, 2009; Bryk, et al., 2010; Carver-Thomas & Darling-Hammond, 2017; Gross & DeArmond, 2010; Ingersoll, 2001; Johnson et al., 2012; Leithwood & Jantizi, 2005; Liu et al., 2008; Marinell & Coca, 2013; Simon & Johnson, 2015; Torres, 2016). On national surveys, about 51% of public school teachers cited more manageable workloads and 53% cited better work conditions as primary reasons for their departure during the 2011–12 school year (NCES, 2014).

Teachers of color also report similar factors that lead to their turnover. Of all teachers of color who reported job dissatisfaction on national survey data for 2012-2013: 81% were dissatisfied with administration, 65% linked their turnover to student assessments and school accountability, 61% to student discipline problems, and 57% to a lack of input into decisions and lack of classroom autonomy (Ingersoll & May, 2016). Teachers' of color negative experiences about their working conditions cut across the public school sector as recent studies show both traditional public and charter school teachers experience being devalued, alienated, and singled out to take on extra responsibilities because of their racial or ethnic identity (Bristol, 2018; Griffin & Tackie, 2016; Torres, 2016; White, 2018). Gist (2016) insightfully characterizes these

experiences among teachers' of color as a "double bind" where teachers are positively drawn to urban schools, but school organizational factors drive them away.

Focusing on school leadership is therefore critical in understanding how principals can shape teacher satisfaction and retention for all teachers. Studies on teacher departure also suggest that additional dynamics of teacher exit—in terms of timing and magnitude—should be closely examined by teacher characteristics (i.e. age, race/ethnicity, gender) (Allensworth et al., 2009; Bristol, 2018; D'Amico et al., 2017; Kohli, 2018; Podgursky, Monroe, & Watson, 2004). Findings from these studies point to underlying conceptual or institutional factors that are often overlooked in explaining why certain teachers are leaving at higher rates. As such, adopting policies and practices to reduce teacher shortage gaps by developing culturally relevant leadership practices (Khalifa et al., 2016) as well as strong human resource management systems will help create the socio-cultural conditions and institutional supports to sustain teachers. In the next section, I explore the impact of policy and practice in further detail by highlighting ways in which state policies and school leaders' practices affect supply and demand in TLMs.

Mediating Shortages: The Role of State Policies and School Leaders

The teacher policy process is complex and multi-faceted as research has shown that federal, state, and local governments share responsibility in developing a robust teacher policy agenda leading to a stable and diverse teacher workforce (Malen, 2003; Rice et al., 2008). However, while agenda setting is largely situated at the federal level, it is the role of state governments to enact federal goals and provide cues to local districts for implementation. For instance, federal policies such as *No Child Left Behind Act* (NCLB) (2001) or *Equitable Access to Excellent Educators* (EAEE) (2015) are taken up by state agencies as states regulate

certification and guide measures for teacher evaluation or equitable teacher distribution (Fuller, Hollingsworth, & Pendola, 2017; Vergari, 2012).

Although teacher supply and demand manifest differently across states, the state education apparatus (i.e., state boards of education, state legislatures, governors) plays an important role in developing policies that affect teaching at the state and local levels. These policies, in turn, form state-level working conditions for teachers. As such, this section emphasizes two key gaps with relation to state and local policy actors' influence on the TLM. First, I argue state policies such as salary and incentives, accountability, school finance, and teacher certification and licensure form state-level working conditions for teachers and, like school-level working conditions, can affect teacher entry, recruitment, and retention leading to a teacher shortage policy environment. Secondly, we know little about how school leaders—as key actors in human resource management and development—navigate the teacher shortage policy environment when making staffing decisions. Addressing these gaps offers fuller explanations for understanding teacher shortages.

State-Level Policies and Teacher Labor Markets

Researchers agree that states hold greater legislative power and administrative control over teacher policies than federal agencies (Fusarelli, 2009; Imig & Smith, 2013; Loeb & Miller, 2006; Malen, 2003; Rice et al., 2008). State education policymaking, with specific regards to teachers, shifted dramatically during the educational reform movement that began in the 1980s (Mungal, 2015). Indeed, the reform movement spearheaded by *A Nation at Risk* revamped the teacher policy landscape as salary, school and teacher accountability, school finance, and teacher licensure and certification policies were modified. Bolstered by a rhetoric that sought to dispel the "rising tide of mediocrity" within schools (National Commission on Excellence in Education,

1983, para. 1), reforms introduced greater authority for states to redirect teacher policymaking. The resulting shifts in governance had direct and indirect impacts on teacher supply, recruitment, and retention.

Salary and incentives. As noted, salary is both a push and pull factor shaping teachers' decisions. Although teacher salary is mostly set at the district level, states influence teacher supply by setting adequate and competitive state salary minimums. In fact, according to Goldhaber, DeArmond, and DeBurgomaster (2011), teacher salaries are derived at the state level in 21 states with Oklahoma consistently ranking in the lowest percentile for teacher salaries (47th in 2014) (Hendricks, 2015; Leachman & Mai, 2014). It is no surprise, then, research has found salary increases will reduce the likelihood of attrition, while districts with lower wages tend to have higher rates of turnover (Clotfelter et al., 2008; Clotfelter, Ladd & Vigdor, 2011; Imazeki, 2005; Scafidi, Sjoquist, & Stinebrickner, 2007). State salary schedules can be strategically designed to mitigate shortages. For example, Grissom and Strunk (2012) advocate for frontloaded salaries (i.e., providing teachers with higher salaries at the front end of their careers) to parallel teacher growth at the onset of teachers' careers and reduce the significant rate of attrition that occurs within the first five years of teaching.

However, modifying the teacher salary schedule is not always a viable economic or political policy option. For example, the demise of the Florida STAR program for teacher bonuses, which was designed and implemented at the state-level, illustrates how some teacher policies can become rescinded and strongly opposed under new administration (Odden, 2011). Indeed, historical policy analyses (D'Amico, 2015) as well as more recent work by Blanc (2019), Earley et al., (2011), and Horsford et al., (2018) provide additional examples of the politicization of teacher compensation and its consequences on TLMs. Preferring more cost effective and bi-

partisan approaches to solving teacher staffing challenges, some states use incentive programs to attract teachers (Kolbe & Strunk, 2012; Rice et al., 2008). For instance, salary incentives have significantly reduced the probability of attrition in shortage areas (special education, math, and science) as part of Florida's Critical Teacher Shortage Program (FCTSP) (Feng & Sass, 2018). In this view, state-level scholarships and forgivable loans are deemed components of teachers' wages intended to attract candidates into the field.

Another component of teacher salary is the state retirement benefit structure, which typically encourages teacher exit as teachers near retirement after 25 to 30 years of experience (depending on entry). Costrell and Podgursky (2009), describing the structure of the TLM as "dramatic peaks, cliffs, and valleys," noted that most state retirement plans push teachers out at early ages (when compared to workers in other sectors) if they do not retire at an optimal time. To minimize early attrition at the backend of teachers' careers, states and/or districts have offered retirement incentives that delay early retirement by keeping teachers in the classroom through deferred retirement option programs (DROP) (Kolbe & Strunk, 2012). Recent shortages have also opened opportunities for retired teachers to return to work as full-time or part-time teachers (Aragon, 2016; OSDE, 2016a).

Many state-level incentive programs are used as recruitment mechanisms to encourage teachers to teach in priority schools or geographically isolated areas (Aragon, 2016; Kolbe & Strunk, 2012). These efforts work to equalize access to well-qualified teachers and allow resource-poor districts to better compete in the TLM. Finally, because teachers of color are especially responsive to education and training incentives, state-provided incentive programs help diversify the teacher workforce in particular districts (Cochran-Smith & Villegas, 2015; Gist, Bianco, & Lynn, 2019).

Accountability policies. Studies also suggest federal and state-level accountability reforms may influence teachers' level of job satisfaction. On one hand, establishing assessment systems for teacher evaluation is intended to improve teacher quality and classroom innovation, while others suggest accountability reforms impart unintended negative consequences of driving teacher attrition (Darling-Hammond, Amrein-Beardsley, Haertel, & Rothstein, 2012; Grissom, Nicholson-Crotty, & Harrington, 2014). In a study using student-level micro-data, researchers found accountability policies influenced teacher retention rates where schools receiving lower school grades (on a scale from "A" to "F") were less likely to retain their teachers, while opposite effects were found in schools with higher grades (Feng, Figlio, & Sass, 2010).

As a tool of accountability reform, value-added measurements may also influence teacher mobility. For example, some studies link value-added measurements to positive turnover, that is, the intended departure of poorly performing teachers (Goldhaber, Gross, & Player, 2011; Loeb, Kalogrides, & Beteille, 2012). But findings from studies linking rewards (or punishment) to teacher evaluation via value-added metrics based on school and student performance are inconclusive and, at times, propped up by ideological positions on merit-pay and other market-based reform tools (see Koedel, Mihaly, & Rockoff, 2015 for review).

Still, as states look to scale-up teacher evaluation, findings from a group of studies on Denver's PROCOMP, for example, illustrate how accountability reforms tied to market-based incentives can influence teacher behavior and employment patterns across various schools (Atteberry et al., 2015; Briggs, Diaz-Bilello, Maul, Turner, & Bibilos, 2014; Fulbeck, 2014; Fulbeck & Richards, 2015). Fulbeck and Richards (2015) observed PROCOMP incentivized teachers to make more strategic moves to "high-value" schools with higher performance and achievement than their non-PROCOMP peers because these schools offered more school-based

incentives. In addition to shaping how teachers moved within the district, Atteberry et al., (2015) and Fulbeck (2014) also identified differential rates of attrition between higher and lower performing teachers and between teachers' racial or ethnic background. Overall, these findings demonstrate ways in which accountability and performance incentives may exacerbate shortage gaps and add to market segmentation between lower and higher performing schools.

The discourse of accountability, often couched as professional development, may also influence outcomes in teacher supply. Minnici (2014) noted that teacher evaluation legislation in 16 states is explicitly defined in terms of professional growth, while another 42 states implicitly convey similar messages. Though professional development and teacher evaluation are largely conceived as policies intended to guide instructional improvement, scholars applying socio-cultural frames found increased accountability policies in California encouraged standardization or "teaching to the test" and contributed to teacher tracking (Achinstein, Ogawa, & Speiglman, 2004).

According to Achinstein et al. (2004), the formation of teacher tracking mechanisms hold similar deficit notions of ability and intellect as those outlined in the literature on student tracking, deeply correlated to race and gender. They observed, "teachers in lower tracks are viewed as being of lower status than their colleagues in higher tracks" (p. 588). These findings are consistent with later evidence from studies on Denver's PROCOMP system of teacher evaluation discussed above (Fulbeck, 2014; Fulbeck & Richards, 2015) as well as studies that pinpoint racialized sorting practices in the TLM (Frankenberg, 2009). Taken together, systems of teacher tracking undergird school leaders' perception about teacher quality and have implications for which teachers principals choose to hire and retain in schools. In short, evaluation and accountability may improve the teacher work force by keeping the most effective teachers, but

unintended consequences of these reforms also raise important equity concerns for policymakers and school leaders to consider.

School finance reform. School finance affects the types of resources districts and schools have to recruit, retain, and support teachers. Specifically, school finance includes per-pupil expenditure, instructional materials and support staff, class size or student-teacher ratio, as well as resources for professional development. Within the past two decades, school finance systems have undergone dramatic shifts and economic shocks, in part, due to the national recession. Nationwide cutbacks in state budgets had direct consequences on TLMs as states issued local directives for workforce reductions for teaching and instructional staff (Elfers & Plecki, 2014; Hough, 2012). Although Malin (2016) suggests education funding and reform efforts tend to parallel a state's ideological slant—greater funding in liberal states, less funding in conservative states like Oklahoma—the impact of the recession was widespread as most state budgets did not return to its pre-recession levels (Blanc, 2019).

There has been little rigorous evaluation of how school finance reform directly influences teacher attrition and retention, although there are implicit assumptions about this relationship, and specifically, how school finance is tied to local control over school resources (Baker & Corcoran, 2012). Borman and Dowling's (2008) meta-analysis on teacher retention found school finance and school resource variables were weakly associated with teacher attrition. Still, efforts to improve school finance systems are often fragmented, with little coherence with regards to teacher and student performance, teacher education and licensing, salary and wages, and professional development systems to support teachers. However, Wilson, Darling-Hammond, and Berry's (2001) analysis of Connecticut's bipartisan approach to school finance reform is an illustrative case of how states can integrate these elements to provide ongoing investments in

teacher quality, while prioritizing student achievement. Indeed, Wilson et al., (2001) cautioned against the "single silver bullet" approach to improve quality and staffing in the teacher workforce. Similar to Rice et al.'s typology (2008), they illustrate how various policy levers using a comprehensive, coordinated, and rigorous three-tiered teacher licensure system can lead to better student and teacher outcomes.

Teacher certification and licensure[6]. States wield strong policymaking power over teacher licensure and certification, despite wide variations in how states set licensing standards by requiring more or less teacher training or scores for basic skills and content tests (Grimmett & Young, 2012; Kretchmar & Zeichner, 2016). These policy mechanisms are important to labor market supply because these standards influence principals' perception of teacher preparedness and quality.

The literature on teacher preparation and licensing standards largely focuses on differences between and within traditional and alternative teacher preparation programs (see Cochran-Smith & Villegas, 2015 for comprehensive review). Theoretical arguments for or against teacher certification hinge on notions of governance and power, teaching as a profession, and worker "quality" measures (Cochran-Smith, 2006; Earley et al., 2011; Labaree, 2004; Sass, 2015). Critics of deregulating licensure and certification requirements have taken seriously the ways these reforms have privatized and monetized teacher education, forcing layoffs and involuntary teacher turnover (Buras, 2011; White, 2016). But advocates turn to licensure deregulation as a viable solution to meet teacher shortages and improve the pool of quality

[6] In education, "licensure" and "certification" are used interchangeably. However, in economic literature, licensure "refers to regulations that prohibit workers who do not meet specific criteria, such as passing an exam and/or completing an approved course of study, from legally working"; whereas certification "refers to the situation where workers who meet certain criteria are given a designation of being certified, but non-certified individuals are also allowed to offer their services in the market" (Sass, 2015, p. 3)

candidates (Ballou & Podgursky, 2000; Cooperman & Klagholz, 1985).

Related to this study, Oklahoma's legislature introduced and passed seven bills as a response to teacher shortages in 2016. Of which, four of these policies addressed teacher supply through deregulating certification (see Table 1). There is little work exploring how changes in licensure and certification policies address teacher shortages. Rather, the literature focuses on the role of alternative programs and certification pathways, which typically eliminate or lessen certain components of a traditional, college recommending program that by-pass teacher training and preparation (Boyd et al., 2006; Cochran-Smith & Villegas, 2015; Cohen-Vogel & Smith, 2007; Grimmett & Young, 2012).

Findings on teachers' certification or licensure status and relation to teacher quality have been mixed. Some studies show small, positive effects of full certification on teacher quality (Clotfelter, Ladd, & Vigdor, 2006; Goldhaber & Brewer, 2000; Hansen, Backes, & Brady, 2016), while others found null effects on teacher effectiveness (Hanushek et al., 2005; Kane et al., 2008). Recent studies have instead illustrated that variability within and across teacher certification programs and pathways explain much of these mixed effects (Cochran-Smith & Villegas, 2015). However, among qualitative and quantitative studies examining retention outcomes across pathways, there is more evidence suggesting that teachers from alternative pathways have slightly higher rates of attrition, especially for teachers from fast-entry programs (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Donaldson & Johnson 2010; Ng & Peter, 2010; Redding & Smith, 2016).

Emergency certification licensure. One fast-track entry pathway that has gained prominence in recent years is the reliance on emergency certification to fulfill demand in states with critical shortages. In May 2017, Arizona passed legislation (Senate Bill 1042) allowing

individuals with no formal teacher training to become teachers as long as they had five years of "relevant" experience in the field (Cano, 2018; Strauss, 2017). Research on emergency credentialing, in particular, is limited since this certification status is typically a temporary designation and/or combined with other state reporting data for alternatively certified teachers. Goff and Bruecker (2017) imply less restrictive certification requirements in Wisconsin have negative outcomes on the applicant pool, especially for schools in rural districts.

Furthermore, as previously discussed, Achinstein et al.'s (2004) study suggest loosening certification requirements can lead to teacher tracking systems resulting in dual tracks of teachers—those who are uncertified or under-certified and those who are certified. In this way, state policies intended to increase the supply of teachers exacerbate existing problems of teacher distribution and generate new challenges for improving teacher quality. Concerns about teacher quality have actually led some states to phase out emergency credentials altogether by abandoning policies that convey a "quantity trumps quality" approach (Emihovich et al., 2011). For instance, licensure policies in Connecticut and North Carolina insisted on providing additional preparation at entry, adding pedagogical methods that targeted reading and special-needs students, eliminated emergency licensing, and toughened requirements for temporary licenses (Darling-Hammond & Ducommun, 2007; Wilson et al., 2001). Taking steps to ensure emergency credentialed teachers receive ongoing training and adequate on-site support may even prevent the risk of turnover. In Missouri, policies ensured teachers with temporary authorization certification (TAC) received individual plans from an academic institution, participated in a school-based mentoring relationship, and completed a maximum of 24 credit hours to become certified, which were found to have positive effects on retention (Scribner & Heinen, 2009).

Table 1. Oklahoma's Teacher Shortage Policy Package

Bill Number	Description	Aim
HB 2371	Eliminates the requirement that a mentor teacher be employed by the school district and allows a former or retired classroom teacher to volunteer or serve part-time in that role at the discretion of the district.	**Teacher Development:** broadens criteria for mentor teachers
HB 2946	Eases the ability of the State Board to issue a teaching certificate to a person who has an out-of-state certificate or an out-of-country teaching certificate.	**Teacher Supply**: broadens criteria for state certification
HB 2967	Gives district boards of education the authority to enter into contracts with student teachers while they are still student teachers, provided that they cannot teach the next year until completing all certification requirements.	**Teacher Supply**: focuses on early recruitment
HB 3025	Expands the list of those who qualify to pursue a standard certificate through an alternative placement program and those who have a bachelor's degree and qualified work experience corresponding to an area of certification.	**Teacher Supply**: approves work experience for alternative and emergency certification eligibility
HB 3102	Increases the maximum number of clock hours an adjunct teacher may teach.	**Teacher Supply:** broadens criteria for adjunct/part-time teachers
HB 3114	*Empowering Teachers to Lead Act*- helps enable districts to pursue a framework of teacher career paths, leadership roles and compensation requirements with a corresponding salary supplement.	**Teacher Development & Pathways:** expand pathways for teachers through incentives
SB1038	Creates a Teacher Certification Scholarship Program under the Office of Educational Quality and Accountability (OEQA).	**Teacher Incentive:** provides **c**ertification scholarship

Licensure reciprocity. States also establish or expand reciprocity agreements to meet shortages gaps (Coggshall & Sexton, 2008). Licensure reciprocity is a policy mechanism by which states recognize a teacher as fully qualified if the license was earned in another state or country (Curran, Abrahams, & Clarke, 2001). Within Oklahoma's teacher shortage policy package (Table 1), licensure reciprocity is used to remove barriers for in-migration by allowing the state education agency to fully accept out-of-state or out-of-country teaching certificates. While Curran et al. (2001) suggest these mechanisms can stabilize market imbalances, there is little empirical work studying supply outcomes of licensure reciprocity agreements. Instead, studies show that teachers often move across state lines to earn better wages, especially when teachers are in close proximity to state borders (Goldhaber, Grout, Holden & Brown, 2015). In sum, the policies in Oklahoma's teacher shortage policy package seemingly contradict much of the above empirical evidence regarding policies and practices that form a comprehensive strategy for improving teacher staffing.

Local Actors in the Policy Environment: School Leaders' Role in Mediating Teacher Shortages

The notion of locality is prominent in teacher labor market studies and, to some, might trump the distal nature of state policies and actors. Indeed, researchers underscore several local mechanisms of TLMs at the district or school-levels: local patterns of teacher shortages, working conditions, localized hiring practices, and, as previously noted, teachers' preferences for working in schools in their local environments (Cannata, 2010; Engel & Cannata, 2015; Killeen et al., 2015; Krieg et al., 2016; Reininger, 2012). As local policy actors, school leaders serve as intermediaries between states and schools (Spillane, Diamond et al., 2002) and can play a critical role in moderating teacher shortages at the district and school levels. This section largely focuses

on school principals and highlights studies on principals' human resource activities, which includes recruitment, hiring, and organizational preferences and practices. A key goal of this section is to address gaps in research about how principals navigate critical shortage environments when engaging in these activities.

Human Resource Management

A commonly agreed on assertion is that teachers are important resources to schools. In education, the field of human resource management, sometimes referred to as human capital development, explores how school leaders can acquire, develop, and retain teachers for effective teaching and learning and organizational improvement (Donaldson, 2013; Milanowski & Kimball, 2010; Noe, Hollenbeck, Gerhart, & Wright, 2017; Odden, 2011). Principals play a key part in these efforts seeking "to hire, retain, develop, and motivate personnel in order to achieve the objectives of the school district, to assist individual members of the staff to reach the highest possible levels of achievement, and to maximize the career development of personnel" (Rebore, 2007, p. 11). Before reviewing research on principals' recruitment, selection, and hiring practices, I begin with a brief discussion on school leaders' preferences and what principals look for during the hiring process.

School leaders' preferences. Principals' preferences are not universally defined, but reflect a range of qualities that match school context, culture, and need. Engel (2013) found systematic variation in principals' preferences across different school contexts within a large urban district. Specifically, principals in low-achieving schools preferred candidates with strong classroom management skills, while principals in high-achieving schools were more likely to emphasize content-knowledge and teaching skills. In contrast to some earlier studies arguing that principals do not value academic indicators of teacher quality (i.e., college selectivity or GPA)

(Baker & Cooper, 2005; Strauss, Bowes, Marks, & Plesko, 2000), recent work presents contradictory evidence to show that principals do in fact value objective characteristics and attributes like value-added measures, certification status, experience, academic record, and subject knowledge, but the degree to which principals prioritize these factors may vary based on school context and staffing need (Balter & Duncombe, 2005; Cannata & Engel, 2012; Engel & Finch, 2015; Harris & Sass, 2011; Harris et al., 2010; Liu & Johnson, 2006). For instance, external or internal pressures of filling a vacant position might cause principals to overlook some of their desired preferences or aspects of person-organization fit that would otherwise be important (Liu & Johnson, 2006).

Principals also value a range of personal and professional characteristics, including strong teaching skills, demonstrating care, the ability to work with others, relatable experience, enthusiasm, and communication skills (Harris et al., 2010). School leaders also value student teaching experience (Papa & Baxter, 2008) and are significantly more likely to hire teachers with pre-service qualifications (Cochran-Smith et al., 2010).

In sum, these findings refute prior claims suggesting principals undervalue content or academic knowledge. Yet, despite this growing body of work on principals' hiring preferences, less is understood about principals' expressed and revealed preferences in critical shortage environments. In other words, how might principals' preferences change when teacher supply is tightly constrained by shortages? And what trade-offs or compromises might principals make when faced with multiple vacancies?

School leaders' hiring practices. The hiring process entails a set of activities aimed at securing well-matched candidates for each school. Recruitment involves finding suitable applicants, while selection and hiring includes screening, interviewing, and selecting applicants

for hire. There is a small, but growing body of work on school leaders' hiring practices where researchers have explored notions of fit, the kinds of tools principals use, screening and hiring processes in different kinds of schools (i.e., charter or traditional public), school levels, as well as districts (i.e., centralized and decentralized) (Cannata, 2010; Cannata & Engel, 2012; DeArmond, Gross, & Goldhaber, 2010; Donaldson, 2013; Engel & Finch, 2015; Jabbar, 2017; Liu et al., 2008; Rutledge, Harris, Thompson, & Ingle, 2008). Collectively, these studies provide important insights into understanding how school leaders adhere to various human resource management systems and follow different protocols to facilitate the hiring process.

Engel and Curran's (2016) study of principals' hiring practices in Chicago Public schools is an important contribution to this body of work. According to the authors, the study "begin[s] to articulate the components of a framework for thinking about the various hiring practices that school leaders use" (p. 186). Hiring practices were considered strategic when they aligned with their district's education plan and the following ten hiring practices were outlined in their framework: 1. Always working on teacher hiring; 2. Begin hiring for school year by March or earlier; 3. Require prospective teachers to teach a sample lesson; 4. Include a content-area specialist or grade-level representative on the hiring team; 5. Ensure candidate is knowledgeable in content-area; 6. Looks for teaching skills; 7. Asks referrals from current faculty; 8. Networks with other principals or administrators; 9. Networks outside of their district; 10. Contacts candidates' references.

Despite the district's plan for teacher recruitment, Engel and Curran (2016) observed that a majority of principals were less likely to engage in these strategic hiring practices. The researchers also noted key differences between primary and secondary principals as high school principals used more strategic practices to attract candidates in STEM fields. The most

frequently used strategic behaviors across their sample of 31 principals included: taking referrals from outside the school (83%); taking referrals from within the school (81%); and taking referrals from outside the district (71%). In relation to this study, I used their framework as a guide or roadmap for analyzing principals' hiring practices. Specifically, I drew on Engel and Curran's (2016) framework as an analytic tool to understand if, and to what extent, these ten strategic behaviors were evident when principals made hiring decisions in markets with critical shortages.

Hiring in shortage contexts. Much of the previously discussed work on principals' hiring practices has been carried out in contexts where, presumably, labor market conditions were typical. There have been few examples where researchers explicitly examine principals' hiring practices in settings experiencing teacher shortages. This section specifically highlights three studies to address this gap in research.

In a systematic study of school administrators' experiences recruiting and retaining high quality mathematics teachers in short supply, Liu et al. (2008) found principals were constrained by the shortage environment. With few candidates possessing the "whole package" of necessary and desired qualifications, principals in their study viewed hiring as a "constant compromise." For example, some principals hired underqualified candidates with the presumption that teachers would turnover quickly. Researchers also observed that principals engaged in "fierce competition" for teachers by exceeding typical recruitment efforts. Similar findings were reported in Ingle, Rutledge, and Bishop's (2011) study, although researchers identified fewer competitive effects for lower-income schools because principals in schools with Title I status were allowed to access the applicant pool early. In turn, early access afforded principals greater

opportunities for information-rich hiring. Importantly, these studies demonstrated the effects of teacher shortages on principals' ability to select and hire candidates.

I identified only two studies in my review to simultaneously address how principals negotiated racial and gender diversity in hiring. In one study, Ingle et al., (2011) noted that, although diversity targets were not strictly enforced by the district, principals engaged in "shuffling" practices by reorganizing teachers at every grade level to ensure at least one minority teacher was present. Rutledge et al., (2008) also observed a similar process where principals attempted to "mix and match" to meet gaps in racial and gender diversity. These practices, then, can also be understood as strategic hiring and organizational practices used to negotiate different types of shortages.

It is likely that employers from various sectors make tradeoffs about job candidates regardless of extenuating labor market conditions. Indeed, in other sectors with limited supply of workers, Rynes and Barber (1990) suggest firms are more likely to use more nontraditional recruitment strategies (e.g., offering salary inducements and "going to market" sooner to recruit applicants), while firms in surplus labor markets will demonstrate more traditional and passive recruitment practices. However, if teachers are a school's most important resource (Hanushek et al., 2005; Kane et al., 2008), then, understanding how principals rationalize these tradeoffs among different types of shortages might provide additional insights on principals' hiring practices. Furthermore, given consistent findings on racial (mis)match between teachers and students (Dee, 2005; Egalite et al. 2015; Gershenson et al., 2017; Holt & Gershenson 2015) as well as teachers and principals (Grissom & Keiser, 2011), extended theorizing is needed to further conceptualize Engel and Curran's (2016) framework of strategic hiring practices in relation to attracting and retaining teachers of color.

It is also plausible that hiring preferences and practices in shortage environments might appear differently than what is presented in Engel and Curran's (2016) framework, given the pressures critical teacher shortages exert on TLMs. With state policies that allow greater entry through deregulation, do hiring preferences and practices remain the same? Or might such policies heighten competition and further exacerbate staffing challenges and teacher distribution inequities? These questions have yet to be answered in the literature. Mason and Schroeder (2010) argue that principals' capacity to "reduce uncertainty" is made more difficult when schools have large numbers of vacancies, as such, this study provided an important opportunity to advance understanding of school leaders' staffing practices in shortage contexts.

Leading for Organizational Stability

Many studies emphasize connections between school leadership or administrative support and teacher retention. Researchers draw insights from the sociology of education (Holme & Rangel, 2012), organizational management (Odden, 2011), human capital development (Donaldson, 2013; Rebore, 2007), and broader approaches to organizational theorizing such as systems thinking and institutionalism (Minarik et al., 2003). A central theme of this work underscores schools-as-organizations and highlights school leadership as an essential component of developing positive and sustainable work environments. What is not yet clear from this research is an understanding of organizational factors and practices that enable school leaders to create stable working environments in contexts of shortages.

Many organizational factors affect teacher behavior and their mobility decisions. For example, Kersaint et al., (2007) observed non-punitive discipline practices reduce teacher attrition, while other factors like school culture, trust, or a school's social and relational capital are associated with outcomes such as higher retention, increased levels of teacher efficacy, and

higher morale and job satisfaction (Achinstein et al., 2010; Boyd, 2008; Brown & Wynn, 2009; Bryk et al., 2010; Elmore, 2003; Farinde-Wu & Fitchett, 2018; Ingersoll, 2001; Simon & Johnson, 2015). In a study of various types of mobility in schools, Holme and Rangel (2012) posit the concept of organizational stability as the cumulative effects of principal, teacher, and student mobility in relation to school performance and a school's social context. In terms of teacher mobility, Holme and Rangel (2012) emphasize high rates of teacher attrition as a catalyst for organizational instability.

Adding to the existing conceptualization of teacher turnover and instability, a recent study by Holme et al., (2018) describe measures of teacher turnover that can range from episodic, cumulative, to chronic turnover, each with differential negative effects on schools. Drawing from descriptive administrative data in Texas, this research suggests that reversing patterns of instability may be particularly difficult for schools experiencing varying degrees of teacher shortage caused by low supply, turnover, or attrition. Indeed, the consequences of such instability can shape teachers' perception of the school and become embedded in the school's environment. Ultimately, they argue, these outcomes can lead to a perpetual cycle of instability (Holme et al., 2018). With this concept of organizational (in)stability in mind, this study was concerned with how principals use organizational practices to mitigate the disruptive effects of teacher shortages.

Principals can work towards organizing schools for stability by emphasizing three key personnel functions: teacher assignment, support, and professional development (Odden, 2011). Teacher assignment refers to "the reciprocal process between school management and teachers to guide decisions about who will teach, where they will teach, and what they will teach" (Cohen-Vogel & Osborne-Lampkin, 2007, p. 434). These locational and personnel decisions are

important to organizational stability as studies show teachers with more challenging assignments (i.e., split grades, multiple subjects, or out-of-field classes) face greater risk of leaving their schools (Donaldson & Johnson, 2010). Implementing induction programs and assigning teachers to well-matched mentors are additional elements of teacher assignment that could prevent high turnover, particularly for early career teachers. Several studies show positive associations between student achievement, instructional skills, and teacher retention when school leaders establish continuous and relevant professional development systems, including induction and mentoring programs (Elmore, 2004; Leithwood et al., 2010; Newman, King, & Young, 2000; Smith & Ingersoll, 2004).

Principal support is another aspect of organizational leadership that boosts collegiality and teacher morale. Brown and Wynn's (2009) qualitative study of 12 principals revealed various dimensions of principal support, in which, advocating for teachers was the most important factor identified to influence teacher retention. Faculty involvement in decision-making processes as well as maintaining a well-defined system devoted to organizational performance through ongoing feedback or recognition of accomplishments are also identified as practices that reduce teacher attrition and migration in schools (Kimball, 2011; Marinell & Coca, 2013).

Despite these various avenues of demonstrating leadership and support, Donaldson (2013) concluded principals narrowly perceive their roles "as human capital developers," in that, they tend to identify hiring and professional development as their preferred methods for organizing schools. The evidence presented in this section supports a broader frame of school leadership undergirded by culturally relevant practices (Khalifa et al., 2016) and human capital and resource development (Odden, 2011; Rebore, 2007). Though school leaders hold less power

to modify state-related issues such as salary schedules, licensure and certification policies, or accountability reforms, findings from these studies illustrate school leaders' considerable agency to wield influence on labor market conditions in their local contexts.

Literature Review Summary and Limitations of Existing Research

The issue of teacher shortages is a major concern for the state of Oklahoma as well as other states experiencing dramatic shifts in the supply of teachers. What we know about teacher shortages is largely based on empirical studies that investigate related issues such as teacher turnover, attrition, and recruitment and retention challenges in the teacher workforce. This section reviewed components of this literature by focusing on the types and causes for teacher shortages, the state policies that contribute to shortages, and school leaders' practices for human resource management in shortage contexts. Research on teacher shortages and turnover rarely account for the complexities of state-level policies that affect teachers' work decisions in terms of entry or exit in teaching. By examining features of the state apparatus, such as salary and wages, certification, and school finance policies, I argued that the broader policy context influences how school leaders make sense of teacher staffing problems at the district and school levels.

Furthermore, while we know that school leaders are critical actors in shaping local-level working conditions to achieve organizational stability, less is known about how school leaders make staffing and organizational decisions to create the conditions for teacher sustainability and retention in contexts of shortages. Findings from the reviewed literature support the conclusion that local and state-level policies and practices work together to enable or constrain different types of shortages. In the next section, I present a conceptual framework to further elaborate my argument by situating the TLM within the state and local contexts.

CONCEPTUAL FRAMEWORK

In this section, I provide a conceptual framework of the study by integrating several theories to capture the dynamics of teacher shortages as they play out at the state and local levels. An overarching conceptual lens of cultural political economy, which emphasizes the reciprocal ways economic, political, and cultural arrangements precipitate or exacerbate social problems (Dumas, 2011) is used to ground the study. To complement this broader understanding of TLMs, I specifically draw on notions of precarity to discuss how shortages, along with other neoliberal transformations in the TLM, create the conditions for leading in precarious markets. Finally, sensemaking is applied as a micro-theory to account for how school leaders interpret the state policy environment. I begin with a brief overview of cultural political economy and its utility for understanding shortages.

A Cultural Political Economy of Teacher Labor Markets

Viewing TLMs from a frame of cultural political economy expands the analyses of teacher shortages by integrating cultural and political explanations as overlapping perspectives for shortages. In doing so, this frame shifts analyses of TLMs from a dominant economic paradigm. Indeed, TLMs are embedded in and shaped by a broader institutional environment, which consists of social or political rules and norms that guide behavior (Braun, Ball, Maguire, & Hoskins 2011; Bridwell-Mitchell 2013). Key actors and stakeholders within these environments must then mediate how policies and problems are interpreted and decide what discourses get taken up about teaching and teachers in policy and the public imagination.

Theoretically, literature on shortages and teacher turnover/attrition applies economic lenses of utility maximization to explain why shortages exist. For instance, it is often noted that better wages outside of education are likely factors that drive higher turnover rates for STEM

teachers (Carver-Thomas & Darling-Hammond, 2017). However, these theories are limited, to some extent, because they do not explain cultural factors that drive teachers' preferences and mobility decisions. Irizarry and Donaldson (2012) use a theory of Latina/o critical race theory, and specifically the concept of community cultural wealth to discuss Latinx teachers' preferences for working within their communities. They observe that Latinx teachers "bring emic perspectives regarding how to successfully navigate schooling, particularly in difficult contexts, that make them an especially valuable resource" (p. 184). When these commitments and cultural perspectives are not valued in schools, teachers' of color become dissatisfied, professionally stymied, and in some cases, move schools or leave the field (Brown, 2014; White, 2018).

Expanding analyses of shortages using cultural political economy might help explain out-of-school, demand-side factors related to the underrepresentation of teachers of color. For instance, researchers examining selection processes using a unique dataset of teacher applications found teachers of color were less likely to be hired or selected for interviews, despite possessing the same qualifications and teacher characteristics as their white counterparts (D'Amico et al., 2017). Similarly, qualitative studies suggest teachers' introduction to the labor market through teacher preparation and student teaching can also serve as racialized teacher sorting systems negatively impacting teachers' future career trajectories (Sleeter, 2017; Watson, 2011). Human resource activities like recruiting, hiring, and evaluation in TLMs are also susceptible to employers' implicit biases with regards to who is deemed a quality teacher and which groups of teachers should teach in particular schools (D'Amico et al., 2017; Farinde et al., 2016; Milner & Howard, 2013). In sum, a cultural turn in TLM studies and policies follows a rich body of work from scholars who challenge notions of labor market neutrality.

Furthermore, acknowledging this institutional environment is particularly important as teacher shortages disrupt normal market functioning exposing the market's complexity and fragility to culture and politics. Scholars have long argued that schools are sites for political and cultural processes (Dumas et al., 2016; Tyack, 1974) and yet, states largely enact policies that are concerned with the economics of shortages. When teacher shortages (a seemingly economic problem) are coupled with the politics of teacher organizing and cultural shifts in teachers' policy image—that is, the symbolic scripts and implicit messages about teachers and teaching that get embedded in policies (Bulkley & Gottlieb, 2017; Cochran-Smith & Lytle, 2006), then, different insights and policy solutions for shortages may emerge. An approach of cultural political economy supports conceptual lenses that fully attend to the complexities of teaching and teachers' work in precarious conditions.

Defining Precarity

The sociological concept of precarity (other closely related terms include *precariousness*, *precarization*, *the precariat*) seeks to conceptualize capitalism in new ways, especially from a vantage concerned with "looking at the system as a whole" (Arnold & Bongiovi, 2013, p. 298). It is commonly associated with migration and critical labor and citizenship studies and European social movements (Schierup & Jorgensen, 2016; Standing, 2011), but scholars in economic sociology, and those particularly in the U.S., have expanded theoretical applications of precarity to account for contemporary shifts in employment characterized by contingent work with lower wages and less security (Arnold & Bongiovi, 2013; Kalleberg, 2009; 2011).

Schierup and Jorgensen (2016) contend this intellectual shift can be understood as "a shift in perspective from a dominant mainstream concept of 'social exclusion/inclusion' to one of critical social studies attempting to understand inequality and social disadvantage as deeply

embedded in the structuration of contemporary neoliberal globalization" (p. 948). Indeed, Kalleberg (2009) maintains precarious labor conditions are not new, but in the contemporary moment is distinctive from previous forms given mass economic restructuring alongside a "neoliberal revolution."

These deep socio-economic changes have produced several dimensions of precarity in the broader labor market including: insecure employment, decreased wages, erosion of workers' rights and social protections, decreased training and worker participation, and a deregulated work environment (Standing, 2011; Vosko, 2010). Workers may also experience individual or collective "representational security" when various aspects of precarious work take shape (Standing, 2011). The decline or absence of union representation in many sectors, including education (e.g. Strunk et al., 2018) threatens how workers are viewed and valued in society. As such, precarity is concerned with how workers' identities are acknowledged or marginalized by the State.

Unfortunately, workers in the precarious labor force are individuals who already disproportionally experience systemic oppression and occupy vulnerable employment status—women, people of color, the undocumented, migrants, etc. (Schierup & Jorgensen, 2016; Standing, 2011; Wilson & Ebert, 2013). To be clear, by virtue of their employment status, teachers largely do not reflect the precariat class of workers at the center of these discussions (i.e., temps, interns, freelancers, contract workers, low-wage workers, welfare recipients, and unemployed) (Kalleberg, 2009; Standing, 2011). Therefore, it is not my intention to shift analyses away from these workers, but to consider how dimensions of precarity, along with parallel neoliberal shifts in the TLM, have rearranged the work and politics of teaching. With

this understanding of precarity in mind, I consider notions of precarity in educational research in the following discussion.

Emerging notions of precarity in education research. With the exception of literature on substitute teaching as a non-standard work form (Pollock, 2015), there is little theorizing about precarity and precarious work in education. To capture the economic experiences of risk and uncertainty caused by technological innovation and changing work conditions, scholars have applied neoliberal perspectives (Apple, 2006; Gorski, 2008), critical theories (Dumas et al., 2016; Kumashiro, 2010; Milner & Howard, 2013), and interdisciplinary concepts such as new public managerialism (Horsford et al., 2018) to trace empirical and conceptual underpinnings of market restructuring in education.

Indeed, much attention has been directed at critiquing market-based reforms and the emergence of edu-business and edu-preneurship within teacher education (Kretchmar et al., 2016; Zeichner & Pena-Sandoval, 2015). Some of this work, for example, attends to organizations like Teach For America (TFA), Relay, and The New Teacher Project (TNTP)—organizational policy actors with strong political and financial capital to affect teacher policy and recruitment and retention in the TLM (Horsford et al., 2018; Kretchmar et al., 2016; Mungal, 2015). As relatively new economic arrangements, various impacts of market-based reforms in the TLM are evidenced by school choice (Jabbar, 2017; Jackson, 2012), changes in federal and state-level support of public education (Cohen-Vogel, 2005; Malin, 2016), decreased teachers' wages (Blanc, 2019; Grissom & Strunk, 2012; Hendricks, 2015), racially fragmented teacher workforce (Buras, 2011; White, 2016); and contestations over collective bargaining and the role of professional organizations in teacher policy (Strunk et al., 2018). And, in some local TLMs, market-based reforms have produced a contingent labor force where teachers cycle between

schools or job sectors because of high rates of turnover and instability (Jabbar, Castro, & Germain, forthcoming; White, 2018).

The TLM must also contend with technological changes as the rise of online schools and online teacher preparation programs signal dimensions of precarious work. In Oklahoma, for example, it is reported that teachers have exited the traditional public school system at significantly high rates to work in EPIC, the state's online school system. Though this exit is largely driven by salary (teachers can earn approximately $18,000 more as a full-time EPIC teacher[7]) (Eger, 2018), online schools—as an emerging technology—can dramatically change the teacher workforce and fundamentally change how teachers (and school leaders) engage in the social process of education. But to fully understand implications for equity and the long term impacts on teaching and TLMs, additional research will be needed to support these claims.

Similarly, the rise of for-profit online teacher and principal certification programs illustrate a shift in teacher professionalism characterized by efficiency, standardization, and managerialism (Mungal, 2016). Critical teacher shortages in states like Oklahoma and Arizona encourage states to deregulate teacher preparation or rely on supply-side policies allowing individuals with minimal to no teaching experience to bypass the teacher preparation and certification process (Cano, 2018; Straus, 2017). A major critique of eliminating or reducing teacher preparation and certification is the impact such outcomes have on teachers' professional identities. Javaid (2009) (as cited in Salifu & Agbenyega, 2016) defines this identity as:

> both the standing or regard accorded them, as evidenced by the level of appreciation of the importance of their function and of their competence in performing it, and the

[7] The average teacher pay at EPIC is $63,000 compared to the state's average at $45,000

> working conditions, remuneration, and other material benefits accorded them relative to other professional groups (p. 7).

As Javaid (2009) points out, teachers' professional identity is linked to both symbolic and structural features (i.e., working conditions and salary) that influence job satisfaction. Indeed, empirical studies discussed in previous sections confirm that teachers consider salary in relation to their working conditions and perceived value.

But when these identities are made vulnerable by policies that inscribe negative policy images about teachers and their work, Standing (2011) argues that workers experience "representational (in)security"—a form of precarity that reflects marginalization of workers' voices and concerns. Evidence of this type of representational precarity might include the recent teacher walkouts and strikes across at least eight states (with a number of localized efforts across the country) as well as teachers' political mobilization during state and local elections in November 2018 (Blanc, 2019). Furthermore, these activities parallel other social movements identified in the literature on precarity (Schierup & Jorgensen, 2016; Standing, 2011) and signal the political underpinnings of precarious workers resisting economic and social restructuring in education.

Viewing TLMs, and especially labor markets with critical shortages, as precarious entities add to a robust body of work theorizing the neoliberal turn in education (Apple, 2006; Gorski, 2008; Lipman, 2013; Zeichner & Pena-Sandoval, 2015). My use of precarity emphasized the "social conditions of precarious work" (Wilson & Ebert, 2013, p. 266) in the TLM. Doing so, provided an additional frame to understand how school leaders made sense of and navigated a precarious labor market when making decisions about teachers' work and employment. To

center these processes and actions at the local-level, the next section applies sensemaking theory as a micro-theory by narrowing these broader perspectives.

Making Sense of Uncertainty

The consequences of teacher shortages—organizational disruption, changes to student learning, and loss of human and financial capital—create organizational stress and heighten principals' sense of uncertainty in school leadership. To make sense of this uncertainty, sensemaking theory allows me to conceptualize how principals interpreted the teacher shortage policy environment and "create[d] rational accounts of the world" (Maitlis, 2005) when making instructional and organizational decisions within their school sites.

Defining sensemaking. Sensemaking theory is generally defined as a "discursive process of constructing and interpreting the social world" (Gephart, 1993, p. 1495). Introduced by Weick (1995), sensemaking involves cognitive and social processes of how information gets transformed into action and behaviors. It is a useful conceptual tool for understanding complexity, disorder, or confusion. As Weick (1995) articulated, "sensemaking starts with chaos" and involves seven key features that are: (1) grounded in identity construction, (2) retrospective, (3) enactive of sensible environments, (4) social, (5) ongoing, (6) focused on and by extracted cues, and (7) driven by plausibility rather than accuracy (p. 17). Individuals may engage differently with these features of sensemaking, but two main outcomes typically occur when individuals experience organizational disruption or environmental jolts. First, individuals experience threats to their professional or organizational identity and secondly, they can respond by enacting some type of planned change or intervention (Maitlis & Christianson, 2014). As such, I used sensemaking theory as a useful perspective to understand critical teacher shortages as a form of organizational shock.

Sensemaking theory has evolved and transformed as scholars advance various notions and constructs (i.e., sense-giving, sense-forwarding) (see Maitlis & Christianson, 2014 for comprehensive review). Critical sensemaking, is one such departure advanced by Mills, Thurlow, and Mills (2010), who draw on interpretivism, poststructuralism, and critical theory to center constructs of power, structure, and context:

> Critical sensemaking argues that the analysis of sensemaking needs to be explored through, and in relationship to, the contextual factors of structure and discourse in which individual sensemaking occurs. Although individuals are making sense of their day-to-day actions on a local level, the concept of organizational power places local meanings in a broader understanding of privilege (p. 190).

In other words, Weick's sensemaking theory overlooks, or at least, does not make explicit connections to how organizations (like schools) are embedded in cultural, political, and economic environments. Indeed, education scholars have taken advantage of sensemaking's theoretical flexibility by applying critical perspectives to elaborate on school leaders' "micro-cognition" (Coburn, 2001) within schools.

Sensemaking in educational research. In education leadership research, Irby (2018) notes sensemaking theory takes two forms. First, sensemaking is used to explore how school leaders make sense of organizational conditions and secondly, how school leaders navigate various discursive processes of sensemaking in organizations. Irby's (2018) synthesis of this literature highlight sensemaking as an individual or socially constructed practice, in that, school leadership is shaped by or is a response to the constraints and opportunities in the extant environment.

At the individual level, sensemaking offers a lens to center school leaders' "rich knowledge base of understandings, beliefs, and attitudes" (Spillane, Reimer, & Reiser, 2002, p. 389) when confronting uncertainty or change. For instance, Lenarduzzi (2015) used sensemaking as a heuristic to examine the emotional impact of school closure on school leaders' practices. The impact of this "critical incident" presented complex dilemmas as principals sought to negotiate their professional and personal roles, while attempting to manage tensions between the community and the district (Lenarduzzi, 2015).

In addition, sensemaking offers a lens to explore schools leaders' policy implementation and enactment as discursive processes (Ball, Maguire, & Braun, 2012; Coburn, 2001; Maitlis & Christianson, 2014). Spillane's body of work (e.g., Diamond & Spillane, 2016; Spillane, Diamond et al., 2002; Spillane et al., 2004; Spillane et al., 2002), for example, offers extended theorizing and analysis of school leaders' engagement with policy and ways in which individual, social-political-historical, and broader institutional factors mediate this implementation.

With regards to teacher policy, school leaders play an important role in interpreting and translating policies between the state and the local environment (Ball et al., 2012). In their study of principals' hiring practices under No Child Left Behind accountability mandates, Rutledge, Harris, and Ingle (2009) apply the concept of "bridging and buffering" to conceptualize interpretative processes of policy implementation and especially under constraints that induce compliance. They observed that most school leaders' accommodated policy demands (bridging) related to teacher certification, but some resisted these policy goals (buffering) by focusing on the school's priorities and objectives, such as hiring teachers' with local knowledge rather than strong subject-area knowledge or certification requirements. Similarly, Rigby (2015) found principals either embraced or rejected the logic of state or district teacher evaluation policies, but

were highly influenced by leadership missions associated with their principal preparation programs. These later studies support Spillane et al.'s (2002) conclusions that principals tend to push back against state policies when tensions exist between policy demands and school leaders' unique worldview or value system.

Summary of Conceptual Framework

Overall, sensemaking in educational research and across other disciplines is a useful analytic to understand how individuals navigate new information and circumstances through particular logics that inform action and behaviors. As a micro-level framework, it was applied in this study to understand how school leaders made sense of the teacher shortage environment. In particular, I sought to answer: what factors do school leaders attribute to the emergence of shortages? And how do school leaders respond to shortages through various staffing and organizational practices? More importantly, sensemaking theory aligns with how I theoretically grounded the study with notions of precarity and cultural political economy as conceptual anchors. Following Evans' (2007) assertion that sensemaking processes are "situated within a broader institutional context" (p. 61), this study's conceptual framework supports an embedded investigation of shortages in Oklahoma's TLM.

CHAPTER 3: METHODS & RESEARCH DESIGN

This study examined teacher shortages in Oklahoma and specifically, how school leaders' understanding of teacher shortages influenced recruiting, hiring, and organizational decisions. The following research questions were asked:

1. For school leaders working in contexts of teacher shortages, how do they understand these challenges and what factors do they attribute to shortages?
2. How do these perceptions influence school leaders' recruiting and hiring decisions?
    a. How and in what ways do school leaders navigate different types of shortage gaps?
3. What organizational strategies do school leaders use to reduce shortages and retain teachers?

To examine teacher shortages at the state and local levels, an *embedded, single case* design was used. This chapter begins with my positionality statement to establish the rationale for the study's methodology. Next, I elaborate on the research design and provide an outline for the study's data and methods, including procedures for sampling, data collection, and data analysis.

Positionality

A first step in qualitative research is to articulate and acknowledge researcher positionality and the epistemological orientation(s) that inform the "why" (i.e., goals, analysis, and agenda) of the research project (Koro-Ljungberg, Yendol-Hoppey, Smith, & Hayes, 2009). My interest in teacher shortages and TLM polices stem from my professional experiences as a teacher and teacher leader in an urban high school. Over the course of nine years, I mentored and provided new-teacher support through induction, mentorship, and professional development in my district. In these roles, I observed multiple and competing policy issues, organizational

challenges, and institutional dynamics driving high rates of turnover. I am also included in the eight percent of teachers who depart from the profession annually. As a "leaver," I, too, left teaching on account of reasons related to poor working conditions, school reform (i.e., accountability mandates and school reconstitution policies), unstable leadership (I worked with five principals during those nine years), lack of administrative support, and inequitable policies and practices within my school.

From these "insider" experiences (Merriam et al., 2001), I am keenly aware of the impact of teacher shortages on schools and understand that staffing problems are fraught with a host of other cultural, political, and economic issues. Yet I also recognize that despite these staffing problems, school leaders maintain a great deal of capacity to organize schools for stability by changing conditions within schools. Therefore, I position this qualitative study within a critical, constructivist orientation (Kincheloe, 2005)—an approach to meaning making that views the sense making processes of local-level actors like school leaders deeply embedded in social and institutional structures within the state (Dumas & Anderson, 2014). The following case study design situates this nexus.

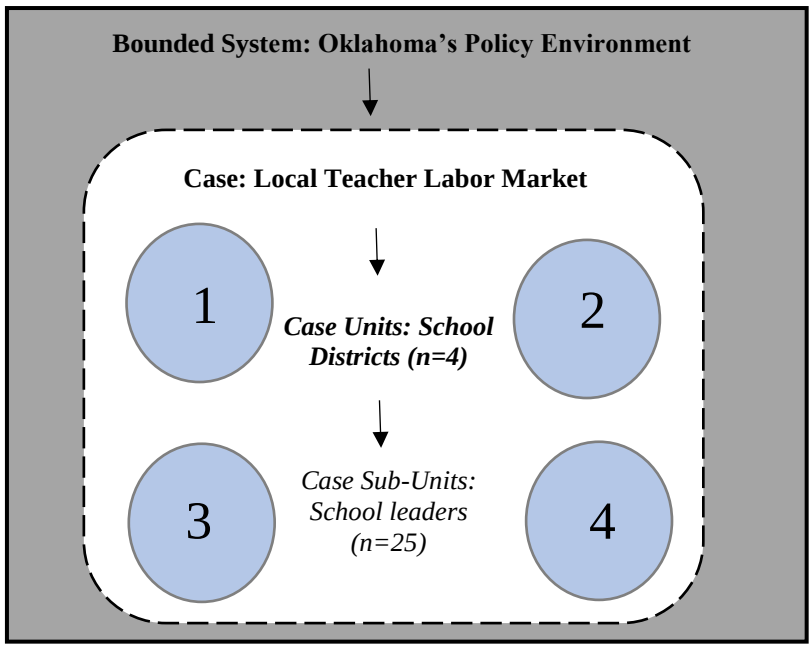
Research Design: Case Study

Case studies are useful for investigating how or why particular phenomena occur in a local context (Yin, 2013). In addition to conducting research in a natural setting, case study design allows the researcher to: (a) utilize multiple methods; (b) engage in complex reasoning through inductive and deductive logic; (c) focus on participants' meaning making; (d) embrace an emergent design; (e) practice reflexivity; and (f) provide a holistic, complex account of the research phenomena, which includes the emergence of crucial events the researcher has no control of manipulating (Creswell, 2013).

Embedded, Single Case Study Design

Teacher shortages in Oklahoma reveal an *extreme* or *unusual case,* (according to state teacher shortage data) which, presents a strong rationale for a single case design (Miles et al., 2014; Yin, 2013). Despite widespread shortages across the state, TLMs are highly local (Boyd et al., 2005; Cannata, 2010; Engel & Cannata, 2015; Killeen e al., 2015) and variation in these local labor markets warrants closer analysis. Therefore, I specifically used an embedded, single case design to simultaneously examine the local labor market as the single case and the state policy environment as the bounded system in which the case is embedded. Embeddedness in a single case design can include multiple layers where researchers can extend the case by "embedding" multiple units for further analysis. As such, the case (i.e., the local TLM) includes four school districts as the case's units. Extending the case even further, I included case "sub-units" that represent schools within each of the four districts. At both the district and school-levels, 23 principals and two district administrators represented the case's unit of analysis. Figure one illustrates a framework for the embedded case and clarifies each level of analysis within the case.

Figure 1. Framework for Embedded, Single Case Design



Sample. I used purposive sampling to identify Oklahoma as the context for the study because of the state's extreme challenges with teacher shortages since 2014 (Berg-Jacobson & Levin, 2015). (Chapter four provides a detailed discussion of the state and case contexts). Additionally, accounts from public media and descriptive reports revealed troubling projections of the state's educator supply (Berg-Jacobson & Levin, 2015; OSDE, 2018). As of 2018-2019, the state of Oklahoma employs 41,047 teachers across 513 school districts serving approximately 694,816 students (OSDE, 2018). Despite the number of districts across the state, five of the largest school districts enroll about 20% of the student population. The student population in Oklahoma is 49.3% White, 8.7% Black, 16.8% Hispanic or Latinx, 2% Asian, and 14% Native American (the largest student population of Native Americans in the country), and 8.7% two or more races. Despite increasing enrollment trends in Oklahoma's urban and suburban school districts, nearly one in three students attend a rural or town school district (NCES, 2014b).

Next, to identify the area or local labor market for study, I used data from Berg-Jacobson and Levin's (2015) state analysis. Specifically, I selected one of the five geographical regions in Oklahoma experiencing the highest rates of teacher shortages as the region for study. Following Lindsay et al., (2016), I used a summative approach to identify multiple indicators of teacher shortages such as: teacher mobility rate, the number of teachers with emergency certification, proportion of "out-of-field" assignments, and distribution of new teachers. Based on these criteria, I selected the central region which has nine school districts. I contacted the research office, public relations, or human resources personnel within all nine districts and four districts agreed to participate in the study.

***Districts*.** According to Milner's typology (2012), all four districts would be classified as high-level, urban characteristic—that is, districts demonstrated emerging or moderate challenges

typically associated with schools in urban areas. Oklahoma is geographically sparse, as such, districts within the local labor market were not clustered together, despite being in the same metropolitan area. This created a unique sample of districts that served a broad range of students. Table two provides demographic profiles of districts within the case.

Within each district[8] (i.e., Davis, Hargrove, Rollins, and Spalding), I contacted school leaders (principals and assistant principals) by email from January 2018 to April 2018 requesting participation in the research. To ensure maximum variation across the districts, school leaders at each school level (i.e., elementary, middle, and high school) were included. Additionally, because district administrators in centralized districts serve as 'gate keepers' in the teacher screening and hiring processes (Young & Delli, 2002) and can offer broader perspectives and insights on shortage trends within their district, I also contacted human resource administrators within the four districts. Two administrators agreed to participate in the study.

Participants. Among the 25 participants in the study, there were 23 school principals[9] with 10 at the elementary level, seven middle school principals, six high school principals, and two district administrators. Most of the school leaders (n=18) identified as white, while seven identified as school leaders of color. Additionally, there were 14 male principals and 11 female principals. Collectively, school leaders averaged 9.56 years of experience. Table three shows aggregate details of the study's participants, while table four illustrates the distribution of participants across the four districts.

[8] All district names are pseudonyms.

[9] Although ten principals served as assistant principals, I made no distinction between lead and assistant principal in this study because all maintained primary responsibility for hiring teachers. In one elementary school, the principal invited the assistant principal to join the interview given her active role in recruitment and hiring.

Table 2. Demographic Profiles of Districts within the Case (2017-2018)

District 1: Rollins	
Total Students	15,942
Number of Sample Schools	6
Teachers	
Total Supply	2,002
Racial Demographics	
White	1837 (91.7%)
Black	32 (1.6%)
Hispanic/Latino	40 (2.0%)
Asian	16 (.8%)
Multiracial/Other	77 (3.8%)
Teacher Characteristics	
First and Second Year Teachers[10]	17.5%
Certified Staff[11]	100.%
Certified staff with advanced degree	32%
Average teacher salary (BA only)	$ 46,126
Number of Emergency Certifications[12]	38

District 2: Hargrove	
Total Students	14,302
Number of Sample Schools	6
Teachers	
Total Supply	1,144
Racial Demographics	
White	940 (82.1%)
Black	98 (8.5%)
Hispanic/Latino	20 (1.7%)
Asian	9 (.8%)
Multiracial/Other	77 (6.7%)
Teacher Characteristics	
First and Second Year Teachers	21.9%
Certified Staff	100%
Certified staff with advanced degree	26.6%
Average teacher salary (BA only)	$ 45,535
Number of Emergency Certifications	50

District 3: Davis	
Total Students	24,403
Number of Sample Schools	6
Teachers	
Total Supply	1,494
Racial Demographics	
White	1386 (92.7%)
Black	41 (2.7%)
Hispanic/Latino	2 (.13%)
Asian	13 (.8%)
Multiracial/Other	52 (3.49%)
Teacher Characteristics	
First and Second Year Teachers	9.8%
Certified Staff	100%
Certified staff with advanced degree	28%
Average teacher salary (BA only)	$ 47,251
Number of Emergency Certifications	31

District 4: Spalding	
Total Students	19,476
Number of Sample Schools	5
Teachers	
Total Supply	1,289
Racial Demographics	
White	1,131 (87.7%)
Black	63 (4.8%)
Hispanic/Latino	48 (3.7%)
Asian	12 (.9%)
Multiracial/Other	35 (2.7%)
Teacher Characteristics	
First and Second Year Teachers	19.5%
Certified Staff	92.4%
Certified staff with advanced degree	23.2%
Average teacher salary (BA only)	$ 47, 949
Number of Emergency Certifications	117

[10] This data reflects NCES District Details (2016-2017)

[11] This data reflects NCES District Details (2016-2017)

[12] This calculation is not totaled because some educators may have been reported at more than one district

Table 3. Summary of Participant Characteritics

School Leader Characteristics	Qualitative Sample	
Gender	**Total**	**Percent**
Male	14	56%
Female	11	44%
Race/Ethnicity		
White	18	72%
Black	2	8%
Hispanic/Latino	3	12%
Asian	0	0%
Multiracial/Other	2	8%
School Level		
High School	6	24%
Middle School	7	28%
Elementary School	10	40%
District	2	8%
Average Years of Experience	9.56 years	

Table 4. Study Participants by District

District	**Gender**	**Race**	**School Level**	**Leadership Experience**
Davis	Female	White	Elementary	13
	Male	White	Elementary	5
	Male	Latinx	Elementary	7
	Male	White	High	4
	Male	White	Middle	2
	Female	White	High	16
Hargrove	Female	White	High	21
	Male	Bi-Racial	Middle	4
	Male	White	Elementary	12
	Male	Black	Elementary	17
	Female	White	Elementary	3
	Female	White	Elementary	13
	Male	Latinx	ADMIN	8
	Male	White	Middle	2
Rollins	Female	White	Elementary	20
	Male	Black	ADMIN	15

	Female	Bi-Racial	High	13
	Male	White	Middle	2
	Male	White	Middle	4
	Male	Latinx	High	9
Spalding	Female	White	Elementary	6
	Female	White	High	7
	Female	White	Middle	6
	Male	White	Elementary	14
	Female	White	Middle	16

Data Collection

An advantage of case study methodology is the ability to use multiple data collection methods or techniques to explore or understand the case (Creswell, 2013; Yin, 2013). Primary data collection methods for this study included interviews and document/content analysis, which was useful to: capture the nature of teacher shortages at the state and local levels and triangulate research findings, strengthening the credibility of the study.

Interviews. Semi-structured, open-ended interviews served as the primary data source for this study. I conducted interviews with the school leaders across the four districts, lasting approximately 45 minutes (district administrator interviews were about 30 minutes). Interview questions reflected a combination of descriptive, structural, and contrast style questions (Kvale & Brinkman, 2009; Patton, 1990). School leaders were first asked about their educational background and history, then I proceeded to ask questions about the causes of teacher shortages and how shortages impacted their district and schools. To address research question two, I paid particular attention to hiring practices and processes. For example, principals were asked to describe the characteristics they looked for when hiring teachers and to identify teacher characteristics that were non-negotiable. District administrators were asked similar questions, but questions were generally focused at the district level.

Given the dynamic nature of case study research and the emergence of a teacher walkout, I modified the interview protocol twice throughout the study to capture school leaders' anticipation of and/or experiences with the teacher strike (See Appendix A, Interview Protocol). Overall, I conducted 11 interviews during my field visit to Oklahoma, while 12 interviews were conducted by phone. I followed up with eight participants via email for clarification or further elaboration on particular points to ensure validity. Finally, except for one interview (at the request of the participant), all interviews were audio-recorded and were later transcribed for analysis.

Document analysis. Another set of data consisted of document or content analysis, which served as my secondary data source to understand trends in teacher shortages and the accompanying policies that shaped teacher supply within the state and local labor markets. I first used Lexis Nexis database and google news alerts to gather news articles and editorials on teacher shortages in Oklahoma. Then, I relied on newspaper circulation data to pinpoint two newspaper sources with the widest readership across the state (*The Daily Oklahoman* and *Tulsa World).* To bound the data, I selected articles between January 2014 and December 2017 because 2014 signaled a change in the TLM evidenced by the exponential number of emergency certificates approved by the state. For example, there were more emergency certificates issued for the 2014-2015 school year alone than in the previous five years combined (OSDE, 2018; OSSB, 2017).

The search yielded 295 articles, but in order to keep analysis manageable, I used Excel's random selection function to identify approximately one-fourth of the articles (n=70) to code and analyze using NVivo. Appendix B displays a summary of the documents included for analysis. It is important to note that because case study research captures ongoing phenomena, I extended

the data collection window to include media articles (n=30) on the Oklahoma teacher walkouts that began late March into April 2018 (see chapter four). Although I did not systemically code these documents, I read and wrote brief memos on these articles to establish a timeline of events, identify key policy actors, and to trace narratives and policy resolutions related to the teacher walkouts.

Data Analysis

This section outlines the three phases of coding and analysis taken to ensure validity and reliability for operations in the study.

Phase one. To understand Oklahoma's shortage context, the documents were collected, organized, and analyzed first using the qualitative software program NVivo. The initial coding scheme for the documents focused on labor market studies and factors related to what shapes supply, types of shortages, working conditions, factors related to mobility, teacher professionalism or status of the profession. I applied an inductive approach using elements of content analysis (organizing information into categories related to the research questions) and thematic analysis (recognizing patterns within the data) to identify emerging themes or theoretical constructs (Bowen, 2009). For example, I sorted relevant sub-themes across the data by focusing on causes of shortages, policy responses, key actors, etc. Additionally, I kept a running memo of events from January 2014 to March 2018 to maintain a clear timeline of particular policies and state legislation (proposed and passed) to contextualize the teacher policy environment.

Phase two. The interview data were coded following a hybrid approach where I derived theory-driven codes from the literature as well as transferred codes and themes that emerged from the document analysis. Given the timing of this study and the need to capture staffing-

related challenges like mid-year turnover, substitute hiring, the walkouts, or district-wide changes to job fairs, I created data-driven codes and used inductive coding techniques (i.e., descriptive, InVivo, process, or values coding) to reflect participants' values, actions, and ideas (Miles et al., 2014). Throughout this iterative process of constant-comparison (Glaser & Strauss, 1967), codes were refined and bounded to aid in definitional clarity (see Appendix C for list of codes).

I also used NVivo's pattern-based, auto-coding function to test my initial codes by selecting a sample of interviews (n=10) to compare each text passage—for example, sentence or paragraph—to the content that was already coded to existing nodes. From the resulting output, I compared codes and reanalyzed sections of content that the software captured, but were not originally coded. I used a similar technique to identify sentiment, which uses linguistic processes and a specialized sentiment dictionary to produce results on participants' feelings about shortages (NVivo, 2018). Additionally, after each interview, I wrote detailed memos to summarize participants' perspectives and experiences and hiring practices, which were particularly useful when disentangling within-case findings.

Phase three. In the final stages of data analysis, I consolidated codes and emerging themes from both sources of data (documents and interviews) into broader conceptual findings and theoretical constructs guided by the study's research questions. To understand the policy environment within this embedded case study, I organized emerging findings into data-analytic matrices using Excel (Miles et al., 2014) and categorized findings based on state-level policy factors and local-level hiring and organizational factors. I also incorporated categories for cultural, political, and economic factors to "operationalize a complex chain of occurrences or events over an extended period of time" (Yin, 2013, p. 155) and to capture how the context

shaped school leaders' perceptions about the driving forces for shortages. Together, revised codes and matrices helped to condense the data into thematic findings to address each research question.

Although the four school districts were embedded in the same local labor market, I conducted within-case analysis to identify similarities and differences in the themes and theoretical constructs. I organized data using the following indicators: state, district, or school-level factors. To confirm or disconfirm within-case findings on principals' hiring practices across school levels, I captured findings using fine-grained tallies of hiring practices, which strengthens the study's trustworthiness through objective analysis (Engel & Finch, 2012). I also compared my findings to Engel and Curran's (2016) descriptive results of strategic hiring practices previously noted in chapter two. Peer debriefing throughout the process also helped to strengthen initial themes by identifying alternate explanations and further streamlined how I reconstructed and later applied the theoretical framework to inform my analysis. Altogether, memoing, multiple coding schemes, peer debriefing, detailed note-taking, and comparing findings with existing research helped to minimize risks to validity.

Limitations of Study Design

A strength of this study is the nested or embedded approach to teacher shortage that allows for a layered, in-depth analysis. However, given that state policy conditions differ from state to state, various policy factors may shape labor market conditions and the ability of school leaders to respond to shortages. Further, while replication logic (Yin, 2013) was used to determine commonalities across the four districts, the current study should be replicated in other contexts where districts vary by geographic location or urbanicity, as well as in contexts where these policy factors (i.e., school choice) may affect labor market conditions for teachers and

principals. Moreover, a longitudinal analysis could provide insight into the impact of shortages as a long term phenomena and particularly alongside national and statewide projections of teacher shortages.

Additionally, the lack of racial diversity in the teacher workforce in this region limited my ability to specifically address how school leaders approached hiring in relation to shortages of teachers of color. While this study includes some preliminary findings that can inform future research and theory building on teacher diversity in principals' hiring practices, it is also likely that findings would be more robust in districts with more teachers of color.

Finally, this study relies primarily on school leaders' accounts of teacher shortages within one region. Although the document analysis sought to capture perceptions of the causes and impacts of shortages across the state, a key limitation is that principals' accounts may not fully or accurately represent how other school leaders within the state experience or respond to shortage. For example, some district administrators may hold greater political agency to sway district superintendents or school boards to offer incentives for recruitment or retention. Additionally, this study does not capture teachers' voices and their perceptions of how the teacher policy environment affects their decisions and behaviors. While being attentive to these limitations, the findings from this study make important contributions to the field of educational leadership, teacher labor market studies, and the politics of education.

Chapter Summary

This study used a qualitative approach, and specifically an embedded, single case design (Yin, 2013) to explore Oklahoma's critical teacher shortage and school leaders' practices within this environment. To take advantage of the embedded or nested design of this research, I employed semi-structured interviews to account for principal's perception of and responses to

shortages at the local level, while document analysis illuminated ways in which teacher shortages played out across the state.

The next two chapters detail the study's findings. To maintain theoretical and methodological consistency with the embedded case study design, chapter four presents narrative case study findings on the state policy environment. This chapter situates the state context as a critical site for influencing teacher working conditions and shortages in Oklahoma. Chapter five shifts the analysis to the local-level and highlights school leaders' hiring and organizational responses within the shortage context.

CHAPTER 4: OKLAHOMA'S POLICY ENVIRONMENT

"I remain deeply concerned about the state of education in Oklahoma. Our state's chronic underfunding of our schools, coupled with a decade of additional significant cuts, has delivered us to an extremely precarious place." (*Tulsa World,* August 20, 2017)

-Deborah Gist, Superintendent of Tulsa Public Schools

This chapter provides a narrative description of the state context in which the teacher shortages unfolded. To do so, I drew on both sources of data to "voice" the case by using participants' voices to explain and describe the state's context. The goal of this chapter was to address research question one, which asks: For school leaders working in contexts of teacher shortages, how do they understand these challenges and what factors do they attribute to shortages?

Two key findings about school leaders understanding of teacher shortages are discussed in this chapter. The first major finding revealed that school leaders conceptualized the state policy environment as a driver of teacher shortages and, consequently, viewed this environment as an important component of teachers' working conditions. In other words, the state policy environment is part of the day-to-day, school-level working conditions influencing teachers' identity, career, and mobility decisions. School leaders also conceptualized the teacher shortage environment as a type of crisis that negatively impacted the school organization. While this evidence supports existing research (e.g., Malen, 2003; Rice et al., 2009), findings also extend what we know about the hidden effects of teacher shortages on school leadership and school organizational functioning.

In addressing how school leaders understand shortages, the second finding suggests most principals frame shortages singularly as opposed to a multi-dimensional problem. With the exception of principals in more racially diverse schools with more low-income students, school

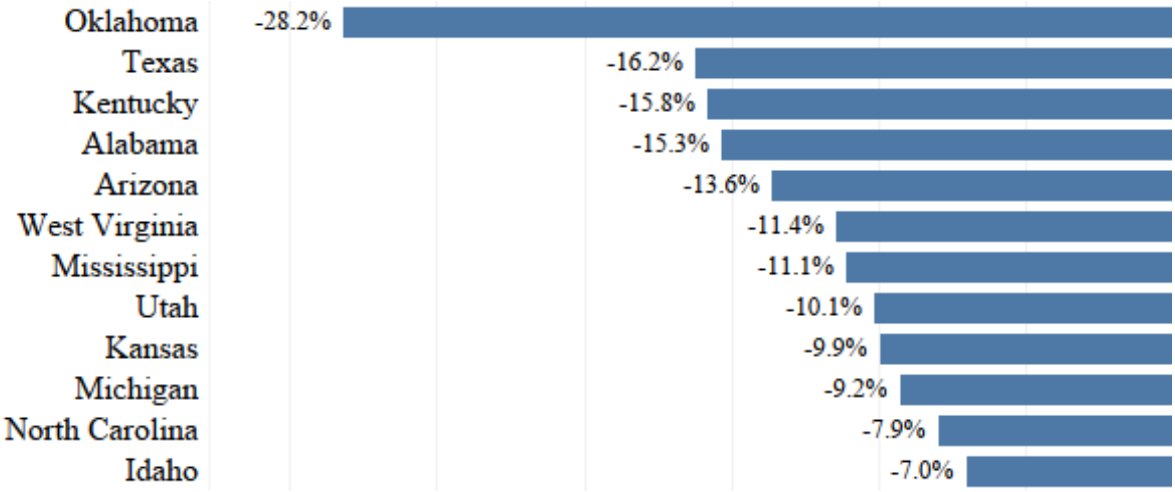
leaders were less inclined to consider the various types of shortages. Importantly, as I will discuss in chapter five, centering my analysis on school leaders' understanding of shortages and specifically, the factors they perceived as driving forces of these challenges inform how school leaders respond and approach recruitment, hiring, and organizing schools for retention and workforce stability. The findings are presented in two main sections. First, I outline school leaders' perceptions of the state policy environment and then, I present findings on how school leaders made sense of shortages.

State Policy Environment

Funding Schools, Funding Teachers

When schools are adequately funded, school finance remains a key policy lever for attracting and retaining teachers. As such, school leaders attributed state educational funding as a major cause of teacher shortages. The economic impacts of the national recession and statewide budget reductions have had multiple effects on public education in Oklahoma. At the national level, Oklahoma has made the deepest cuts to school funding since the start of the recession with a 28.2 % decline in per-student spending since 2008 (Leachman & Mai, 2014) (see Figure 2). According to the Center on Budget and Policy Priorities, Oklahoma spent approximately $8,000 per student in 2014, which is well below the national average of $11,400 (Leachman & Mai, 2014; Perry, 2019). The state's funding formula is based on ad valorem and state taxes, which are combined and then distributed to school districts. The formula also takes into account the needs and grade levels of students and bases aid on local school district's capacity to fund themselves. Based on this formula, state aid can vary drastically by districts. For example, in 2015-2016 state funding ranged from a low of $16 to a high of $7,740 per student across the state (Perry, 201).

Figure 2. Percent Change in State Formula Funding (2008-2018)



Source: Center on Budget and Policy Priorities, 2017

Not surprisingly, there was a general sense that declining education funding was, according to most principals in the study sample, "one of the biggest issues" driving teacher shortages because "the overall funding in education having been cut so much [it] has driven other parts of the job into the breaking point." Explaining the budget shortfalls in Oklahoma, a district administrator commented, "we're talking about a decade where we're expected to function on the same amount of money, if not less." Indeed, as one principal noted, they were expected "to do everything we've done in the past, plus a little more every year with a lot less." These shortfalls produced a deep sense of frustration for principals.

School leaders reported several consequences of how these budget cuts affected resources for schools beyond the supply of teachers: limitations for new textbook adoptions, use of technologies, reduced funds for field trips and extra-curricular activities, increased class sizes, or decreased the availability of instructional support. As one elementary principal described:

> There's no money for an extra teacher because of funding. And so, we're seeing our class sizes increase and when we use up personnel money, we only have so much money we can spin for personnel and keep ourselves afloat. And when we're out of money, there's

> no extra teachers or TAs [teacher assistants] to hire. And so we're just having to do what we have to. Back in the day, when you had too many kids in the classroom, the state would say you're going to lose accreditation and get a fine. Now our district, we just choose to pay the fine versus hiring someone else.

Importantly, this comment underscores the interrelated ways that school funding can impact TLMs and school leaders' management practices.

Funding mechanisms also affected teachers in other indirect ways. With no additional funding for mentorship incentives, one middle school principal believed experienced teachers were dis-incentivized from taking on teacher leadership responsibilities and this, he argued, was "a significant micro-factor that affects our experienced teachers and their desire to want to do the work." By suggesting that funding can affect both the macro and micro-level contexts of schools, principals believed these policies strongly influenced teachers' level of dissatisfaction. Though many school leaders agreed that "a lot of factors weigh into the climate of where we are today," they also acknowledged that the "policy issues that we are dealing with are coming from the very top, coming from the legislature down." In other words, many school leaders understood and attributed teacher shortages (and other educational challenges) as an outcome of state-level policies that fund schools.

The politics of school funding. Current educational funding challenges in Oklahoma stemmed from earlier political challenges that were also linked to teacher strikes. In fact, three principals contextualized the current state of public education in Oklahoma by referring to the 1990 Oklahoma teacher strike, in which teachers voiced similar concerns about lower state-wide education spending. Specifically, the legislature opposed a half-cent increase in the state's four-cent sales tax as well as additional increases in corporate and personal income tax for education

spending (Associated Press, 1990). Almost three decades later, financial constraints from the 2008 economic recession, coupled with losses from the oil industry and revenue failures from sharp income tax cuts, left significant deficits in the state's capacity to fund education.

A few school leaders deeply knowledgeable of Oklahoma's policy history critiqued the state's conservative landscape insisting that it is an important backdrop to the current shortage and funding challenges. For example, one district administrator believed the latest proposal for increasing the sales tax by one-cent, which would have provided teachers with a $5000 pay increase "failed because they [the legislature] wanted to see more taxes going toward our oil companies because there was production taxes." The lack of educational support at the state-level was also perceived as the state's ideological alliance to private interests. And specifically, one elementary principal commented, "nationally driven campaigns by certain political groups – an anti-tax campaign," which conveyed a sense that Oklahoma was "more pro-voucher and pro-private school," than supportive of public education.

Although most school leaders maintained a politically-neutral stance, their tensions about the "lack of support for teachers in Oklahoma" was directly linked to "the lack of movement and help from the state government." With several failed attempts for increasing teacher pay, principals felt the walkouts and strikes signaled "the last straw for our educators." From this perspective, the state held direct authority over ballot measures that sought to increase teacher pay, provide educational support staff, and increase per pupil expenditure.

Teacher Salary: **"The Big Elephant in the Room"**

Oklahoma's TLM, like markets in other sectors, maintain particular features that affect teacher supply and demand. For school leaders in this study, teacher compensation was a primary driver of teacher shortages. Principals believed the state could alter state funding and teacher

compensation in ways that either supported or undermined teacher recruitment and retention. School leaders also believed salary was connected to more intangible aspects of teachers' work and identity—the perception of teachers and the quality of the teacher workforce—as contributing factors to the shortages.

Teacher salary in Oklahoma. Prior to the teacher strike, Oklahoma's teacher compensation structure was the lowest in the region and ranked 49th nationally with beginning teacher salary at $31,600. Oklahoma also had the lowest average teacher salary within the region at $44, 921 (Hendricks, 2015; Leachman & Mai, 2014; Sutcher et al., 2016). Although all districts within the case offered salaries exceeding the state minimum (see Table 2), market analyses indicate that overall teacher salaries have decreased since 2008 when adjusted for inflation. According to Hendricks (2014), teacher salaries in Oklahoma are about 16% lower than teacher salaries in Texas and 28% lower than median salaries for similar workers in Oklahoma's private sector. Additionally, teachers' earning potential in Oklahoma becomes significantly lower the longer teachers remain in teaching. For example, a teacher with 10 years of experience is expected to earn about 37% less than an employee with comparable experience in the private sector (Hendricks, 2014).

School leaders regarded teacher salary as "the big elephant in the room" or "the major reason why we are in this situation." These sentiments about teacher pay were evident across districts and school levels. In a 2016 article, the state superintendent of education stated, "in this unprecedented teacher shortage, it is absolutely critical that we as a state address teacher compensation and give teachers a stronger reason to stay in Oklahoma classrooms (*Tulsa World*, January 28, 2016). Confirming the stagnant wages across years of working in Oklahoma, one elementary principal commented: "when I got into education 16 years ago, I was well aware of

the pay, but that was 16 years ago, and it really hasn't changed much so teachers are leaving because they are frustrated." School leaders believed limited or declining wages has motivated teachers to exit the field to seek alternative work options in other sectors and deterred teachers from entering teaching.

Teacher Entry and Exit in Oklahoma

Teachers' entry and exit decisions are moderated by different factors that either pull teachers in or push them out of the profession. Oklahoma school leaders related salary as both a barrier and driver of teachers' entry and exit decisions. As one principal said, "in this state, it's impossible to ignore teacher salary because that's why teachers are leaving and that's why we have a shortage." Indeed, several reports confirmed that between 2010 and 2015, more Oklahoma educators left the profession than joined it—creating the conditions for teacher shortages and hiring difficulties (Hendricks, 2015; OSDE, 2018).

Teacher entry. At the front-end of the teacher workforce, low pay was regarded as a primary barrier to entry for increasing supply. For one high school principal, the ongoing political battles in the state legislature regarding teacher compensation produced a "climate that is not respectful [to teachers] and so many people choose not to get into the profession." Oklahoma, like many other states across the nation has experienced a decline in enrollment in educator preparation programs within the past decade (Sutcher et al., 2016). However, enrollment in Oklahoma's teacher preparation programs lag far behind the national average with a 12% decline in enrollment from 2014-2015 to 2015-2016. Additionally, enrollment trends also show a lack of diverse candidates as 71% of 2016-2017 program enrollees identify as white, adding to the overall underrepresentation of racially and ethnically diverse teachers in the workforce (USDOE, 2018). As rational beings, teachers consider multiple factors when making

job decisions; however, when considering the rising cost of college, salary plays an important role for new and potential educators.

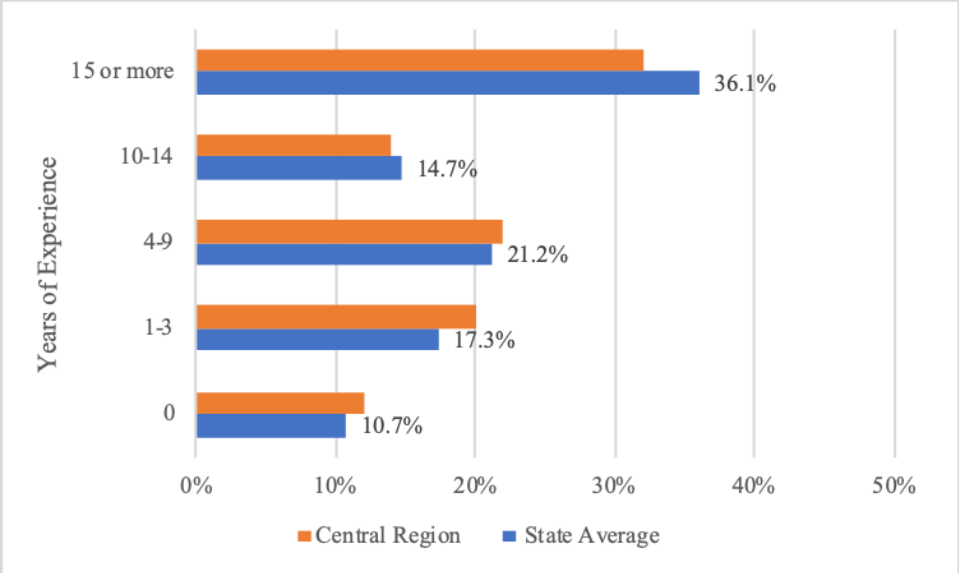
Not surprisingly, school leaders were "deeply concerned" about recruiting new teachers in their districts (*The Daily Oklahoman*, August 3, 2015). For example, one superintendent reported in an article that four physics teachers were prepared in Oklahoma in 2015, and if they decided to stay in the state, "that means every district in the state ... we're all fighting over them" (*Tulsa World*, January 30, 2016). As noted in this comment, Oklahoma's teacher supply data indicated a problematic trend where a significant portion of program completers, many of whom were out-of-state residents (mostly from Texas), did not go on to become certified or employed in the state. In fact, from 2009-2014 almost 20% of program completers came from outside the state of Oklahoma (Berg-Jacobson & Levin, 2015), which exacerbated challenges in growing a new supply of teachers.

Aware of this early mobility, principals' efforts to build rapport with teacher candidates in hopes of recruitment were mostly unsuccessful. One middle school principal said, "I've had several teachers who we've trained here at [School] and when I've talked to them about job openings, I mean it's almost a nonstarter…. [because] they're going to go to Texas and starting at least $10,000 more." As such, school leaders felt they were "left with a tiny fraction of the graduating class staying in Oklahoma" (*The Daily Oklahoman*, March 19, 2015). It is important to note that larger districts across the state partnered with programs like Teach for America or TNTP to strengthen district recruiting and marketing opportunities (Eger, 2014), but these efforts were regionally limited and often targeted at teacher candidates in STEM. Still, the overwhelming sense among principals was that without a substantial increase in teacher pay, efforts to raise teacher supply will be inadequate because "teachers have the option to leave and

go to North Texas and make $10,000 or $15,000 more a year." With a marketplace option to go to neighboring states and earn significantly more, principals believed their inability to attract teachers was a result of the state policy environment and specifically, Oklahoma's compensation system.

Teacher exit: turnover and attrition. Attrition rates across all teacher experience levels increased over the past decade in Oklahoma outpacing neighboring states (see Figure 3). Data indicate 11 out of 100 Oklahoma teachers exited the workforce, compared to, for example, eight out of 100 teachers who exited Texas' public schools each year (Hendricks, 2015). Attrition rates for novice teachers are especially high with about 17% of Oklahoma's new teachers exiting the public-school system after their first year. As discussed in the literature review, differential turnover rates exist across school contexts (i.e., geographic location, student demographics, and resources). Hendricks' (2015) labor market analysis show turnover rates in Oklahoma schools are about 20% higher in low-income schools serving a majority of students of color than in high-income schools.

Figure 3. Educator Experience in Oklahoma (2017-2018)



School leaders viewed teacher attrition and shortages as issues entangled in many challenges involving state policies. An obvious cause of this attrition was teacher salary. Principals spoke of teachers' frustration and job stress by relating the following sentiments: "they're just tired," "fed up," and that teachers were "angry that many can't make a living wage." School leaders also explained how pay affected teachers' work-life balance and sense of job security with six principals noting that a number of teachers in their schools held second jobs or experienced financial difficulty, like "having their cars repossessed, have been evicted from their house because they can't afford to pay for it." But despite the view that "pay is obviously an issue," principals also attributed the shortage to a set of other state-related factors.

For example, eight principals discussed increasing class size as a push factor with regards to making teachers' working conditions more difficult. Class size limitations that were in place since 1990—an outcome of the 1990 teacher strike—were suspended in 2013 (Perry, 2019) and, as a result, affected job stress and dissatisfaction, which are factors that lead to eventual attrition. Describing the impact of challenging work conditions in her high school, one middle school principal remarked, "all of our classes are 30 plus. We have classrooms of 35, 36 students and that is a very difficult working environment. We've just asked more out of teachers than they can possibly give." Recognizing the impact of these "ancillary work issues that come from decrease educational funding" throughout his district, one district administrator raised concerns about how these challenges affect job satisfaction:

> Teachers have to do more, they're having to pay for supplies. They're having to volunteer more in areas where they would have been compensated for the extra work or another person would have been hired to handle it. And so they're doing more duties in the interim, with having larger class sizes. And so when you increase the amount of work and

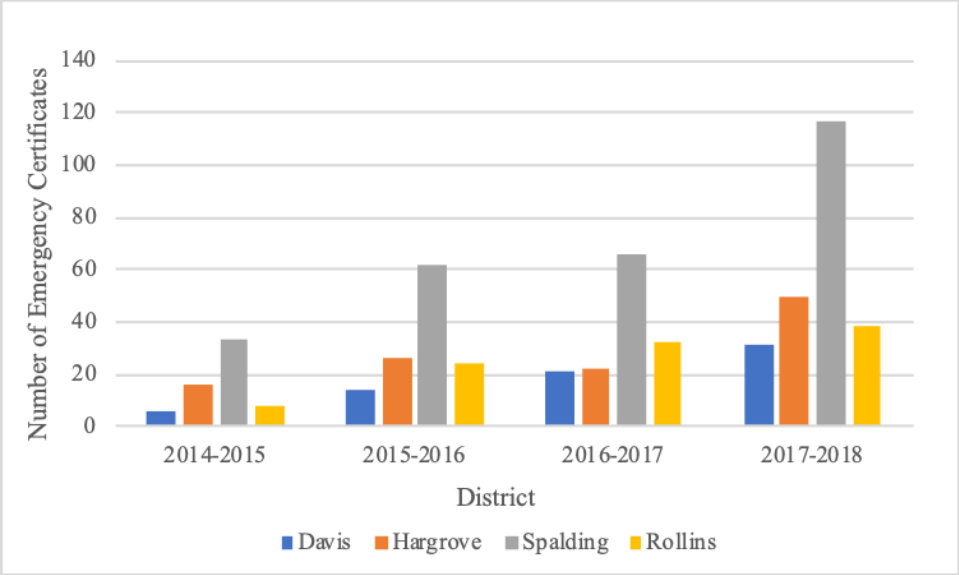
the intensity of the work, while not increasing their salary appropriately, then you're going to get people who say like, 'I could do this for less money, but not with the stress'.

Although school leaders emphasized compensation as a critical factor explaining why teachers were leaving, they also associated the impact of school education funding to other aspects of teachers' work.

Few school leaders attributed shortages to school or teacher accountability pressures, although research suggests these factors may encourage attrition (Booher-Jennings, 2005; Darling-Hammond, 2013; Darling-Hammond et al., 2012; Grissom et al., 2014). Rather, one public school administrator noted accountability measures of common core standards actually "compounded the [shortage] problem" because "veteran teachers are being taken out of the classroom and moved to specialized roles as districts work to put in place changes associated with the Common Core academic standards" *(Tulsa World,* September 14, 2015). Overall, the projected demand for teachers in Oklahoma will continue to outpace supply and school leaders were hopeful that changes to the state's education budgets might reverse these trends.

Emergency Certification. With more teachers choosing not to enter the field and an increase in teacher attrition, the use of emergency credentialing was one of the policy responses folded in Oklahoma's teacher shortage policy package (see Table 1). From 2014 to 2018, the number of emergency certified teachers within the state more than tripled. School leaders had mixed feelings about the use of emergency certification, but generally held that the policy was a short-term response that could exacerbate teacher shortages (Figure 5).

Figure 4. Number of Emergency Certificates Issued by Sample District (2014-2018)



Eighteen principals (78%) in the study had at least one emergency certified teacher since 2014 or hired a long term substitute to fill vacancies. Prior to 2014, one of the district administrators recounted a time when he "tried to hire somebody as an emergency certified personnel. And it was like, it was nearly impossible, the district was against it." But in Oklahoma's current shortage context, emergency credentialing had come to represent an emerging and distinct pathway to fill shortage gaps. A common view among principals was that emergency certification was "a huge problem," or at least, "a double-edged" policy response. As one middle school principal expressed, emergency certification addressed the teacher shortage "by putting a body in a classroom, but it doesn't necessarily put a *teacher* in a classroom. Just because a person has some experience or understanding of a concept, doesn't make them a teacher." Another principal echoed this tension, "we're thankful that they've [the state] given us the opportunity to have emergency certifications, but on the other hand, it's detrimental." Principals agreed that the detriment was mostly to students since emergency certified teachers were often underprepared, had less teaching skills, and experienced greater difficulty with

classroom management. From a management perspective, these teachers were seen as a risk because "some of the emergency certified people have been amazing…some have been disasters." Despite that emergency certification was used to fill vacancies across all districts, principals also expressed a strong concern for how this policy impacted the perception of teachers and the broader profession.

Perceptions of Teaching

In addition to teacher salary and compensation policies that led to shortage challenges, principals believed the impact of these policies contributed to "negative image of teachers," which subsequently added to overall disinterest in the field. These negative images "kinda make it hard to want to be a teacher" given the "overall lack of respect shown towards teachers, mostly from the media and legislators." Indeed, one principal believed these perceptions were associated with a "feeling of not being appreciated, whether that's in monetary appreciation or just in general." An example of this underappreciation and disrespect for teachers occurred in the first few days of the teacher strike when state governor, Mary Fallin, compared teachers to "a teenage kid that wants a better car" (*Tulsa World*, April 3, 2018). For many educators, the governor's comments fueled their frustrations as they outlined demands for stronger state support. Principals believed such disparaging comments served to further taint teachers' images, underscoring "the policies that have been put in place" that created "the climate surrounding education in Oklahoma."

One high school principal stated that the repeated failure of several bills intended to increase teachers' salary had "a severe impact on teacher morale, they feel demoralized." Most school leaders believed raising wages "would make a huge difference" and, according to one elementary principal, was viewed as "a way to show our profession respect and to make a

point… that they [teachers] deserve the income of a college degreed person." In this view, salary symbolized how the state valued teachers and the teaching profession.

But some principals believed teachers' policy image and professional identity held greater weight than salary because these perceptions directly impacted teachers' self-efficacy and school leaders' ability to attract new candidates to the field. One high school leader said, "…even more than the money is the respect. That teachers don't feel like they have to justify their existence and value with every other conversation that they have." Similarly, a district superintendent was quoted in an article saying, "if everyone could be more intentional about letting teachers know that they are important. Money isn't everything. Trust and respect do go a long way" (*Tulsa World*, April, 27, 2016). Ultimately, principals believed salary was a key policy lever to reconstruct teachers' image and the public perception of teaching.

Although negative perceptions of teachers or teaching were not unique to Oklahoma, principals still regarded the state policy environment as a key site where teachers' professional identity is formed. Changing the environment in which teachers worked, required that state policy actors "treated [teachers] like the irreplaceable professionals that they are. Their education expertise, experience and dedication to our students must be respected and honored" (*Tulsa World*, March 20, 2016). This view also explained why some principals opposed emergency certification: by "putting less qualified teachers in the classroom…seems like the whole profession is becoming devalued." Here then, principals situated teacher shortages and teachers' identity within a broader cultural, political context noting:

> I know it's a nationwide issue in states that have lack of funding because I've read articles about North Carolina and of course in other states with teacher walkouts and strikes. So I think there may be a cultural thing going on and that also contributes to it.

Though underexplored in the teacher shortage literature, principals held strong views about the power of state policies and actors in constructing perceptions of teaching.

Finally, it is important to note that these sentiments were expressed among principals across the state regardless of where they worked. For example, one principal in the Davis school district, a resource-rich district, said, "I don't think morale in Rollins, in our fairly affluent suburban school, is nearly what it is in other places. But I think it's more of an outside issue for our teachers at Rollins." For him, these external forces included negative representations of teachers' work in mass media, shifts in Oklahoma politics, or general public opinion causing teachers to "feel like there's not a lot of respect for their profession." Furthermore, because principals viewed these attitudes as a consequence of the state policy environment, they felt their capacity was "kind of limited what we can do internally to address a lot of those issues that are external." Thus, with little capacity to change external perceptions, principals believed teachers internalized such attitudes leading to fewer teachers entering the field and greater teacher exit.

Making Sense of Shortages

In the previous sections, I discussed factors school leaders' believed were major contributors to Oklahoma's teacher shortage. With these factors in mind, I now turn to how school leaders understood and made sense of teacher shortages. Two key findings emerged. First, principals generally held a one-dimensional view of shortages where they focused less on the types of shortages, but instead maintained a broad, singular understanding of shortages in schools. Secondly, principals made sense of teacher shortages by relating the impact of shortages within their school context. These perceived effects reflect principals' lived experiences as they sought to manage the various impacts of critical teacher shortages.

One-Dimensional View of Shortages

Content-area Shortages. Elementary principals mentioned special education and early childhood education as their greatest subject area needs, while secondary principals mostly faced staffing challenges in special education, math, and science. Statewide trends in supply and demand confirm principals' perceptions about the availability of teachers in these particular subject areas (OSDE, 2018), however few perceived these shortages differently.

For example, an elementary principal with over 20 years of experience said, "special ed is always hard to find, there's just no one," but when asked about how school leaders were tackling this staffing gap, she and other principals mentioned the state certification program. The state department sponsored Special Ed Boot Camps for teachers to gain additional certification and offered additional salary incentives for special education teachers. However, these initiatives, according to another elementary principal, were not successful because many teacher candidates were "staying in a year or two and getting out because special education is so hard and tedious with all the paperwork and stuff like that." As noted in chapter two, special education teachers have especially high attrition rates due to the demands and specifications of the job that often require a higher workload. Although teachers were eligible for additional state incentives, principals' suggested special education teachers were unwilling to commit to teaching for longer periods because compensation did not match the expected work contribution.

Context-based Shortages. Similar to broader trends in the national workforce, attrition rates in low-income Oklahoma schools were about 20% higher relative to high-income schools where teachers have more experience and stronger credentials (Hendricks, 2015). Principals did not explicitly mention school or district policies related to these contextual differences of shortages, although principals were aware of the disparities existing in schools. For instance,

speaking about her own district's proximity to a rural fringe, resource-poor district, one principal stated:

> I'm in a suburban district and we have a pretty decent pay rate, but when you go into rural areas, I'm not really sure how they get teachers to commit to their district, especially when being this close to a suburban or urban area where they pay more…The principals that I know in those areas, they really struggled finding quality teachers because of the pay.

Other references to contextual shortages similarly reflected a barometer to which principals compared their own school or district circumstance, noting how bad staffing challenges were in other districts. For example, one school leader said, "I truly lose sleep when I think of what type of situations they may have in their buildings with teachers and the quality of teachers that they're putting in front of their kids and they have the most challenging kids. So that worries me greatly." In another example, one Rollins principal described how well-run their district administration is when compared to other districts and "looks at ways to cut spending and save every bit where it can be saved so that we don't have to feel maybe the impact that other school districts feel."

These references to particular shortages in other schools or districts, many of which were lower resourced schools, suggests that school leaders were seemingly aware of the disparities in particular school contexts, but were relieved that they fared better than these less fortunate districts. Furthermore, it also suggests school context and the characteristics of the student population influenced how principals made sense of shortages.

Shortages of Racially and Ethnically Diverse Teachers. The racial and ethnic demographics of teachers in Oklahoma mirror national trends with 82% of teachers identifying

as white. Table 2 demonstrates the racial and ethnic make-up of teachers within the districts showing significant diversity gaps between teachers and students. Only three school leaders addressed the shortage of teachers of color in Oklahoma. In fact, one of these school leaders acknowledged that "everybody in the state of Oklahoma needs to be more proactive" about improving teacher diversity, but there were few efforts to address the lack of diversity in Oklahoma's teacher workforce. As one district administrator noted,

> I can tell you that as a principal in my 11 years of hiring teachers I could count on one hand how many applicants I had that came from other races other than white. I mean it was just not how many people were just applying and I it becomes an issue you know. So how do we solve that. What can we do.

Still, one principal of color, who was the first Black man hired in his school as a teacher during the 1980s, managed to change the makeup of his school over the course of his tenure by trying to "hire good people…while being conscious about who was here. Now we have about 30% Black, 50% White, and Hispanic and Native American teachers as well. I'd say our staff is very diverse now." Although most principals would agree that all schools benefit when they are more diverse, few principals made explicit mention or acknowledged the need for concerted efforts to address diversity gaps within their schools or districts.

The Perceived Impacts of Shortages on Schools

In addition to viewing shortages from a one-dimensional perspective, principals also understood shortages relative to the impacts these challenges had on their schools. Therefore, I discuss the perceived impacts of teacher shortages because how principal's understood shortages was closely linked to how these staffing challenges played out at the school-level. Specifically, school leaders described the impact of shortages on mid-year turnover, broadening staffing gaps,

and increased organizational stress—factors that created greater difficulty for principals to retain staff.

Mid-year turnover. In this policy environment, mid-year turnover emerged as a more permanent feature of the local labor market. About half of the principals in the sample (n=12) reported challenges with mid-year turnover, although four of these cases were planned exits due to retirement and maternity leave. However, seven other cases of mid-year turnover were unplanned (there was one incidence of an untimely death), leaving principals with few hiring options. Five of the seven teachers who departed before the school year were emergency certified, while the other two were relatively new, traditionally prepared teachers.

Principals mostly attributed teachers' departure to being underprepared and unwilling to deal with the pressures of being a teacher. Describing a teacher who left after only two weeks, one elementary school principal recalled, "she lasted two weeks and resigned because it's not what she thought it was going to be." Similarly, a high school principal in Spalding shared a related experience:

> we have had several hires at the beginning of the year that were emergency certified because we needed to fill positions and within the first month of school, we had teachers quitting already because they just couldn't handle it. They decided that they weren't cut out for it.

Though mid-year turnover is a common occurrence in all TLMs (Henry & Redding, 2018), principals noted this type of turnover became more pronounced in this context, which compounded the problem of teacher shortages overall. Hiring and replacing teachers throughout the year became a source of frustration for several principals who felt they were constantly hiring. Having had three teachers who left during the year, one high school principal remarked:

"we have been in the hiring process for different classrooms all year long because they'll just give up and quit and then we'll have to fill another position and then they'll quit again. So we've been, we've been hiring for people all year long." Thus, what was previously considered an administrative task occurring in spring and summer now occurred throughout the year, limiting principals' time for other leadership activities.

Staffing gaps. One of the major ways principals discussed the impact of shortages at the school-level related to how shortages impacted existing staff. Beyond attracting new teachers, principals discussed ways teacher shortages changed the overall profile of their schools' instructional staff with a majority of teachers concentrated on either the front or back-end of their careers. These mid-career gaps were in part due to increased attrition among experienced teachers with more than five years of experience and newer teachers, who exited the system before they became experienced. In a succinct description of this finding, an elementary principal described these gaps as "a rift in the district with experienced teachers."

Career teachers in Oklahoma are defined as those with more than three years of experience (OSDE, 2018), which is two years less than the five year minimum typically used in other states. And, as previously mentioned, the attrition rate increased over the past six years, representing more than 5,000 educators who left the profession in Oklahoma (OSDE, 2018). Although the distribution of educators across age groups has remained stagnant, the average experience level of teachers in Oklahoma (12 years of experience) has declined and is two years less than the national average (see Figure 3) (OSDE, 2018; Taie & Goldring, 2017). Put simply, principals experienced greater challenges in retaining successive cohorts of teachers within this policy environment. The cumulative retention rate of beginning teachers who started teaching in 2012-2013 was 81.8% after the first year, but by year five in 2016-2017, the retention rate fell to

53.9%. Therefore, a school's most productive workforce—teachers with 3 to 15 years of experience—exited schools at higher rates and as a result, created mid-career gaps in school staff.

Whereas experienced teachers might move between schools, re-enter the field, or move into various teacher leadership positions, principals consistently noted that the incoming teacher supply reflected candidates who were "either the newer ones fresh out of college or the ones that are at that retirement stage or have retired and, and then kind of coming back." At least seven principals observed this "troubling trend" in their schools noting that "what we are short on is years of experience" because most applicants were in the "one to five year range" of experience. Although principals made clear the advantages of having new teachers who could bring innovative ideas, relate to students, or introduce various instructional technologies, many were concerned about the absence of mid-career teachers and the effect this might have on their schools:

> So my biggest concern has been, well, we're seeing so many teachers leave the profession in that three to five year range and so we have this huge gap of teachers, who, once they get into the prime of their productivity years, they're not there. I mean those teachers have dropped out of the profession. And so…we're left with a larger number of teachers with three years or less experience. (*middle school principal*)

In this environment, figuring out how to "get them to the 5th year" was a human resource priority for all districts. Moreover, with little room to offer additional incentives, both district administrators were concerned about retaining career teachers in Oklahoma. This concern for teachers' career longevity was common across all districts as principals sought experienced teachers who might serve as teacher leaders.

Organizational stress. Teacher shortages also produced high levels of organizational stress, which influenced how principals perceived and understood shortages. Principals described the psychological effects of shortages resulting from an imbalance between job demands, job resources, and the capabilities or needs of an employee (Salem, 2015). Eleven principals linked the limited financial resources from the state and its impact on teachers' ability to perform well as a key source of this stress, while another eight linked greater job stress in school leadership to the absence of experienced teachers. One high school principal added that "when these teachers are gone, it just adds more pressure to everyone else's plates."

Organizational stress also stemmed from the difficult decisions school leaders had to make within this policy environment. Some of these decisions, like downsizing staff or cutting particular school programs, had lasting effects on teachers and students. When faced with cutting eight teachers, one elementary school principal considered how these changes might affect teacher morale and class size. Similarly, cutting particular programs due to budget constraints presented additional concerns for students' career pathways or extracurricular activities (especially at the high school level). Overall, these organizational challenges illustrate that the cumulative impact of teacher shortages extended well beyond supply and demand. The next section provides additional findings on how school leaders' made sense of shortages within this policy environment.

Leading in Precarious Markets

With multiple factors entangled in the state policy environment, a recurrent theme of precarity surfaced across the data as principals related a deep sense of uncertainty about the current labor market. The "severe teacher crisis," as one superintendent noted in an article, created "this level of uncertainty [that] will only drive more educators from Oklahoma as they

seek employment in states where the public education systems offer better pay, more security and better opportunities" (*Tulsa World*, April 14, 2016). Given that shortages were largely viewed as "a direct correlation to the divesting in education from our legislature and state," school leaders believed their leadership practice was directly impacted by the current conditions.

Describing this impact, one middle school principal said, "all of those things contributing to our current crisis as far as the lack of quality teachers available for schools. It's a very precarious situation. And it's been a difficult one for us to navigate as administrators." Indeed, existing understanding of sensemaking in organizations suggests crises can prompt powerful changes to an organization or incite confusion (Maitlis & Christianson, 2014). Put simply, the teacher shortage environment disrupted the everyday roles and routines of school leadership.

Shortages, salaries, and strikes. In addition to the overall shortage context, the teacher strike in April 2018 triggered even more uncertainty in school leadership. Emboldened by teachers in West Virginia where teachers led a nine-day strike and won a five percent raise in teacher pay, teachers in Oklahoma similarly led efforts outlining their concerns about cutbacks in educational funding and demanded a $10,000 increase in salary. Despite their own politics and uncertainty about the walkouts, school leaders were overwhelmingly empathetic towards teachers' concerns. One principal commented that he "hate[d] the fact that it's gotten here," while another principal said, "teachers don't want to walk out on our kids, but they feel like they don't have a choice. They feel like they've been backed in a corner and feel like if they don't, then it's going to continue to go down for them." While these views highlight tensions between teachers and state policies, it was unclear if principals saw themselves as passive arbiters of this environment over which they had little control.

In the days leading up to the strike, principals were not "real sure" about the plan for the teacher walkout admitting things were "still cloudy, as far as what will happen" and awaited direction from their district superintendents. The teacher shortage and the walkout brought even more uncertainty about school-level operations. For example, one principal was concerned that "if we don't come back for testing with the walkout, then we're at the possibility of losing state funding and that's hundreds of millions of dollars and if we lose hundreds of millions of dollars, how are we ever going to open our doors and where are we all at in that?" Here then, school leaders' anxiety heightened as they contemplated the outcomes of the teacher strike on their already fragile school environments.

Chapter Summary

The state apparatus is deeply entrenched in a complex ecology of various cultural, political, and economic factors (Weaver-Hightower, 2008). As such, this chapter sought to sift through these broader forces to center salient factors underlying the teacher shortage crisis in Oklahoma. This chapter focused on school leaders' understanding of shortages and specifically, the factors they perceived as driving forces of these challenges. By conceptualizing the state environment as a working condition, school leaders described ways in which the local TLM is dependent on and influenced by state policies. Much of the driving forces of teacher shortages were attributed to state-level policies outside of school leaders' range of influence. Therefore, teachers' individual decisions on entering or exiting the field were seen as a response to statewide polices shaping teachers' professional commitment.

By providing a rich, in-depth description of the case context using participants' voices, this chapter also illustrated how the policy environment affected schools and school leadership, revealing hidden effects of shortages on schools. Understanding how principals made sense of

the perceived impacts of shortages within the local context further clarifies the role of state policy as a predictor of teacher entry and attrition as well as its influence on school leaders' leadership capacity. What follows in the next section builds on the case context and findings from this chapter by examining school leaders' roles as human capital managers in a context of shortage.

CHAPTER 5: SCHOOL LEADERS' RECRUITING, HIRING, AND ORGANIZATIONAL PRACTICES IN SHORTAGE CONTEXTS

This chapter presents narrative case study findings about principals' human management practices with regards to recruitment, hiring, and organizing schools in contexts of shortages. Specifically, this chapter addresses the following research questions: (2) How do these perceptions influence school leaders' recruiting and hiring decisions? a. How and in what ways do school leaders navigate different types of shortage gaps? (3) What organizational strategies do school leaders use to reduce shortages and retain teachers?

When understood as a complete process of human capital management, recruitment, hiring, development, and evaluation work in tandem to affect teacher retention and organizational stability (Donaldson, 2013). Taken together, findings indicate that principals have to mediate between what they know, what they would do in an ideal labor market, and what the reality is in Oklahoma. Further, shortages destabilized the TLM in such a way that the rapid decline in the quantity and quality of teachers can be viewed as an exogenous shock to principals' managerial practices.

To illustrate these findings, the chapter is organized in four major sections. As a starting point, I discuss principals' recruitment practices highlighting both formal and informal recruitment strategies. Next, I outline principals' preferences for teacher hiring. I found principals in the study sample emphasized three selection characteristics in shortage contexts: strong instructional skills, being good with kids, and classroom management. Building on principals' preferences, the third section focuses on principals' hiring practices where I present a conceptualization of three types of hiring practices evidenced from the data—transactional hiring, creative hiring, and intentional hiring. Finally, the last section describes principals'

organizational practices, which are characterized as instructional responses, relational responses, and district-level responses. Overall, these findings reveal how the teacher shortage policy environment affected school leaders' human management practices when recruiting, hiring, and organizing schools for retention and the coping strategies they developed to maintain organizational functioning.

School Leaders' Recruitment Practices

Unlike much of the existing literature on teacher recruitment (Balter & Duncombe, 2005; Engel, 2013; Harris et al., 2010; Liu & Johnson, 2006), this study directly explored teacher recruitment practices in a market with critical teacher shortages, which adds further nuance to studies on school leaders' demand-side practices. Findings on school leaders' formal recruitment activities reflect common practices identified in previous literature including hosting job fairs, developing partnerships with teacher preparation programs, and using district-level screening systems. However, the shortage environment led principals to use more informal recruitment practices to attract candidates such as relying on social media, internal referrals, or actively recruiting parents or long-term substitutes. Overall, findings revealed ways in which the teacher shortage environment intensified recruitment efforts (see Table 4).

Formal Recruitment Activities

As was expected, all school leaders in the four sample districts engaged in typical recruitment practices outlined in the literature like hosting or attending job fairs, partnering with teacher preparation programs, or placing job-related ads on search engines, school, or district websites. These formal activities were supported and authorized by district leaders, with job fairs being a primary method of recruiting across all districts. Districts hosted at least one main job fair in early spring, but it was not uncommon for district leaders or principals within each district

to attend “every job fair out there that’s held at a university”—even job fairs that were tailored for the broader public. Hosting or attending multiple job fairs was one way district administrators sought to expand the supply of teachers, even though principals consistently described these events as under-attended.

Table 5. School Leaders’ Recruitment Practices in Shortage Contexts

School Leaders Reported Recruitment Practices	**Number of School Leaders**			
	Davis	Hargrove	Rollins	Spalding
Attended job fairs	6	8	6	5
Offered recruitment incentives	2	0	1	0
Used job search technologies or platforms	6	5	3	2
Established early career pathways	1	1	2	0
Used social media	4	6	3	4
Emphasized amenities in the school-community	4	3	4	2
Partnered with local universities	5	4	6	3
Recruited parents or substitutes	0	2	1	2

In addition to these district-wide efforts, principals elaborated on recent initiatives to establish early career pathways for high school students to create more “student-teacher engagement.” Leveraging the tight-knit community in Davis, an elementary school principal stated his school cultivated early recruitment pathways by hosting a reception for students interested in teaching as a way “to get some facetime with administrators and let them ask us questions and that sort of thing.” This early exposure, he believed, helped to “encourage high school students to go into the field of education.”

Relatedly, another formal recruitment practice included principals’ relationships with teacher preparation programs. Principals generally credited their partnerships with local universities as “a big part of our success in recruiting.” However, principals in Davis and Rollins seemed to use these networks more systematically and with greater frequency citing similar universities from which they attracted candidates as reliable sources for student teachers. In

contrast, principals in Hargrove and Spalding reported less use of these partnerships or were more likely to draw candidates from a wider range of programs whenever possible. For example, a principal in Hargrove describing her school as an "inner-city high school" stated, "I take every student teacher and every student observer that any university calls because if I can get them in the school, they're gonna want to work here." Similarly, a middle school principal in Spalding asserted, "if you have a student teacher in your building, you build relationships with them," implying student teaching was a prime opportunity to recruit candidates. In fact, three principals reported hiring student teachers in the most recent hiring cycle (Spring/Summer 2017).

Still, as discussed in chapter four, fewer teacher candidates had intentions of staying in Oklahoma and this, coupled with a higher number of out-of-state students in education programs, presented fewer opportunities for principals to build relationships with teacher preparation programs and student teachers. Moreover, one elementary principal in Hargrove remarked that "everybody's contacting the teacher preparation groups… and by the time you call, it's '*well we don't really have anything* [emphasis added].'" In addition to these competitive pressures, principals also acknowledged that recruiting teachers was more difficult because teachers were drawn to "more selective schools" with higher salaries. With little control over the salary schedule, principals felt these labor market factors weakened their ability to recruit candidates.

Despite the pressures of recruiting, all of the sample principals worked in centralized districts. As such, a majority of the staffing procedures to screen candidates (i.e., collecting resumes, assessing academic record, basic competency tests, etc.) occurred at the district level and often with the assistance of talent management software. This structure, for the most part, tasked district administrators with managing these formal aspects of recruiting. In turn, principals

used additional informal recruitment practices to draw candidates and ensure prospective teachers were a good fit for their schools.

Informal Recruitment Activities

Principals' informal recruitment activities were largely unsystematic and self-instigated efforts at recruiting candidates. Unlike formal recruitment practices, informal recruitment activities were ongoing processes of identifying teachers at will. To this end, one elementary school principal in Davis likened his role to a headhunter: "So here we're principals, yet now we're working as head hunters…we recruit teachers by any means necessary." Like headhunting, principals felt a constant sense of urgency to recruit teachers given the uncertainty of staffing.

As such, most of principals' informal activities occurred through social media (Facebook, Twitter, Instagram), which afforded them 24/7 access to add content to their school websites to attract candidates, engage with peers and colleagues about prospective teachers, and, according to one elementary principal "see what their personality looks like on online to gain a little bit of insight where they might fit." For example, one elementary principal working in Hargrove found Facebook:

> To be our biggest ally. We have a really large Facebook following due to just different things that we do in our building and we post. And so I'll share all of my teachers' classroom Facebook pages and it feels like we get more applicants through Facebook contacting us via email and things like that…just interested in a position.

Overall, most principals agreed that social media made "a big difference" on recruitment.

Although other principals did not generate this level of applicant interest through social media, principals found these technologies useful to "show off all the good things we do in our school." This was especially true for principals in Hargrove who were frustrated by negative,

racialized and classed perceptions of their schools. In their attempts to present more favorable images and perceptions of their schools, principals consistently referred to their role as "spokesperson" or "advocate" for students and teachers, working tirelessly to promote their schools' achievements.

Enlisting social media as a recruitment channel also presented opportunities for principals to provide candidates with a realistic job preview. One elementary school principal with two current vacancies in his school advised prospective teachers to "check out our Facebook page" as a way to "keep up to date on what we're doing." Overall, because the shortage context required principals to engage in constant recruitment, social media—as an informal tool—afforded principals additional opportunities to "get people to come to our building" and market their schools.

Asking teachers for referrals and recommendations for "qualified, good people" was another frequently used informal recruitment tactic, as outlined in previous studies of principals' recruitment practices (Engel & Curran, 2016). Principals in this case study preferred referrals as a recruitment strategy because it reduced time spent on active recruitment, which then allowed principals to reallocate time towards instructional leadership. As noted in chapter four, the shortage environment significantly impacted how principals managed their time, therefore, ongoing recruitment was viewed as a necessary, but distracting managerial task.

Principals also believed asking teachers for referrals were ways to signal organizational trust and distribute leadership—organizational features that seek to build morale and job satisfaction (Bryk & Schneider, 2002; Marinell & Coca, 2013; Simon & Johnson, 2015; Spillane et al., 2004). These views surfaced mainly in elementary schools perhaps because recruitment and hiring at the secondary levels already involved various teacher representatives. For one

elementary school principal in Rollins, who usually conducted interviews alone, going to her staff as a first step enabled teachers to identify a candidate they believed were a good fit:

> I am constantly talking with teachers when we have a position open… I'll go to them and ask them, do you know anybody who's looking for a position? Do you know of anyone who's graduating because, you know, we're certainly willing to bring in new teachers and help grow good, quality teachers? So that's my first step—go to my staff, go to my leadership team and start talking to them and ask them who do they know, because if it's someone that they're willing to recommend to the building, it's probably going to be a pretty good fit for us.

Another elementary principal remarked referrals provided opportunities for teachers "to get involved in the hiring process." Whether these requests for referrals from current faculty resulted in successful hires is unclear, as principals did not report the frequency with which referred candidates were hired.

Other means of informal recruiting occurred based on staffing need and urgency. These efforts were as random as asking a cashier at a local grocery store if she was interested in a job or contacting former teachers on parental leave. With Oklahoma's teacher policy package deregulating teacher certification requirements, principals approached recruitment by casting a wide net. In fact, five principals across the sample districts mentioned that active parents in the PTA and substitutes were ideal candidates and were often recruited in this shortage context.

Section Summary

This section discussed principals' formal and informal recruitment practices and the strategies and tools used to recruit candidates in contexts of shortage. Despite widespread teacher shortages, I found school leaders' formal and informal recruitment practices reflected highly

localized activities for attracting prospective teachers, confirming prior research (Cannata, 2010; Engel & Cannata, 2015; Killeen et al., 2015; Krieg et al., 2016; Reininger, 2012). However, engagement with more informal activities revealed ways in which the shortage context encouraged constant and active recruitment.

Significant differences within the case districts were not identified, but it is important to note that principals' formal and informal recruitment practices were driven, in part, by teachers' perceptions about particular schools. At least five school leaders believed misperceptions about their district, which were tied to the district's higher percentage of students of color and low-income students, served as key barriers to recruitment. In other words, student demographics were additional labor market characteristics that, coupled with the state policy environment, impeded some principals' ability to recruit candidates to their district.

School Leaders' Hiring Preferences in Shortage Contexts

Previous research has made clear that understanding principals' preferences is an important component of teacher hiring given the effects teachers have on student achievement (Engel, 2013; Harris et al., 2010). This section describes characteristics principals looked for when hiring teachers in a shortage context. Overall, I found sample principals identified multiple traits and characteristics previously outlined in the literature. However, when asked to describe what characteristics were non-negotiable, principals consistently mentioned three primary traits: strong instructional skills, being good with kids, and classroom management—each of which is discussed below. By outlining these characteristics, I show that the shortage context brought into sharp contrast differences between principals' preferences and actual decisions.

Instructional Skills, Content Knowledge, and Teacher Efficacy

The first major preference reflected "strong instructional strategies," which were viewed as "the foundation to highly effective instructional practice." In general, principals valued "a person who knows the craft" or "who understands the concept of a lesson design, and how to put together a quality unit." These skills were especially relevant for secondary principals who sought candidates who could "make Algebra II or our gen chem classes engaging for students." Subject area shortages in special education also drove principals' preferences for teachers with content-area knowledge as well as the technical skills to meet the needs of students with special needs.

Previous research suggests principals in higher-income schools demonstrate stronger preferences for teacher quality (Cannata, 2010; Engel & Finch, 2013; Rutledge et al., 2008), but I found no difference in principals' expressed preferences for teaching quality across school levels or school contexts. Rather, I found that the organizational impact of teacher shortages on a school's staffing circumstance (i.e., emergency candidates, long term substitutes, vacancies, mid-year turnover, etc.) dictated the degree to which a principal might forsake quality to ensure a hire was made. In other words, principals with fewer staffing challenges were less likely to compromise on their priority for high teaching quality and instructional skills than principals with greater shortage-related challenges.

In Davis, where there were fewer indicators of shortages, an elementary school principal who described the district as "one of the top districts in the state," held very specific and rigid preferences for teacher quality. She noted teachers should be able to:

> understand guided reading and have some good, strong pedagogical knowledge about reading, particularly if they can talk about guided reading models. They can talk about

> scaffolding their lesson to meet the needs of all students and can talk about and creating flexible groups where they do curriculum based interventions. Are they knowledgeable about the response to intervention process?

Her preferences reflected curricular alignment with the district's goals and expectations, which, she further went on to explain were indicative of the type of rigor and instructional quality she was expected to identify when selecting candidates. However, she recognized the difficulty in maintaining these preferences when there were fewer quality candidates to choose from. While other principals stressed these preferences as important, they were more willing to make trade-offs about instructional quality.

School level staffing challenges, coupled with the limited supply of candidates in the TLM, forced principals to compromise objective qualities like having a certification or being a strong content-area expert. Principals with more years of experience frequently made references to their hiring experiences "several years ago" as a way to make sense of the current environment and to signal that their preferences have shifted to accommodate the present shortage context. As a proxy for instructional quality, several principals instead emphasized teacher efficacy and "teacher drive." For instance, a middle school principal noted that:

> If I can't hire you based on your credentials, I understand that. I get that. I need to know what you're doing with those credentials to bridge that gap. And if you can convince me that you believe that you can change the course of that student, you can help that student believe, that they can succeed, then, that teacher has a shot. So, for me it's just teacher efficacy—what do you believe you can do for that young scholar to help them believe in themselves?

In the absence of strong instructional skills, principals sought candidates who were "train-able." According to one high school principal, being trainable meant that with appropriate professional development and mentorship, underqualified teachers could lead to potentially good teachers. Still, these exceptions were held alongside or contingent on other measures of instructional quality like academic record, GPA, work history, and principals' subjective assessment of teachers' capacity.

Relating to Kids

The other trait 14 (60%) of the 23 principals believed was nonnegotiable in this shortage context was being "good with kids." As one middle school principal rationalized, "if you have somebody highly intelligent, but with no character and respect for kids, they're going to get you in trouble every time." Displaying affective characteristics that demonstrate care, fairness, nurture, and respect towards children is essential to being a good teacher and, not surprisingly, are also identified in other studies as key preferences for most principals regardless of the context (e.g., Engel, 2013; Harris et al., 2010). However, in this study, I observed that 10 of the 14 principals who identified this key preference related 'being good with kids' as an underlying component of *person-job fit.*

Player, Youngs, Perrone, and Grogan (2017) operationalized person-job fit "as congruence between employee needs and the demands of the teaching profession" (p. 332). As one principal asserted, developing rapport with students was "more important than who's got the most advanced degree or who's maybe even most intelligent. I look for fit." Principals described teacher-student interactions by stating particular skills, abilities, or values needed to connect with students. A more succinct conceptualization of person-job fit was expressed by one high school principal who said, "a person could have the appropriate training, but not be the right fit for kids.

We're still talking about working with young people. So I think you have to be an appropriate fit to work with young people."

Unlike preferences for instructional skills, principals' were less likely to negotiate or make trade-offs about this particular quality because as one elementary principal declared, "no amount of PD [professional development] can get you to want to work with kids." The emphasis on being good with kids as it relates to person-job fit is salient when considering Oklahoma's attrition rate and the increased mid-year turnover many principals experienced. Perhaps, principals aligned 'being good with kids' as an indicator of how well a candidate matched the demands of the job or how long they might remain in the profession.

Relating to diverse student populations. In districts serving more low-income or racially diverse students, (i.e. Hargrove and Spalding), principals especially sought candidates who could "work with the students regardless of what their backgrounds are and understand the need for differentiated instruction." This aspect of being good with kids underscored principals' preferences for teachers who could relate to racially and ethnically diverse students in "the new demography" (Gándara & Mordechay, 2017). But the absence of strategic state and local-level efforts for recruiting a diverse pool of teachers undermined preferences for this selection characteristic.

Discussing the difficulty in recruiting diverse teachers "who can work with low income students and high diversity," one principal in Spalding felt she "just had to select teachers based on who's out there…I take what I can get." Other principals were similarly resigned about diversity in the applicant pool, but one exception was reflected in a comment from a middle school principal in Rollins who intentionally sought out diverse candidates to better reflect the changing demographics of his school:

> We need to start earlier at recruiting a more diverse pool of candidates into the education field. I think it's a huge issue. Our demographics are changing dramatically, particularly, our increasing Hispanic population. And there's a huge premium in Oklahoma right now on the ability to be bilingual. We just hired a social studies teacher and I'll be honest, what set her apart was her ability to speak Spanish. And I think that was a huge asset for her going into that interview. And so I think there's a huge need there.

Principals in schools with less student diversity and students with economic need did not emphasize this characteristic as a key preference. The emphasis on teachers' ability to connect with diverse students is, in part, reflective of changing demographics within schools; but, with the exception of discussing the low supply of teachers of color, principals generally did not mention other ways teachers could relate to students through culturally relevant teaching practices.

Classroom Management

The third trait principals consistently identified as a major selection criterion was classroom management. Principals believed a teacher's approach to classroom management was foundational to facilitating good teaching and teacher-student relationships. As one elementary principal claimed: "if you can't control your class, you can't teach them. They [teachers] have to have good classroom management." Another elementary principal was equally unwavering, believing that "maybe they don't have full certification or maybe they don't have the perfect student teaching record, but they *must* have that classroom management." The emphasis on classroom management as noted in these two examples was also a nonnegotiable preference for other principals.

However, given the shortage context and the number of emergency certified candidates in the labor pool, some principals were more flexible about their preferences for classroom management noting teachers could learn these skills by observing well-trained teachers. In fact, one principal admitted that it was "kind of hard to know, whether you made a good hire or not" due to the greater percentage of new teachers being hired (without preparation or student teaching experience) and the shortage pressures within the policy environment.

When asked to describe how they ascertained particular skills that related to their preferences, several principals discussed using situational questions during the interview process as a way "to see how they [teachers] would respond in tough situations." Principals also suggested these questions served to: show a teacher's ability to do the job and enabled them to detect a teacher's overall character. Despite seeming as an inherent quality for all teachers to demonstrate, classroom management likely emerged as a major preference due to larger class sizes and the increased disciplinary challenges principals now encountered because of teacher shortages.

Section Summary

In sum, strong teaching skills, relational aspects of teaching and being good with kids, and classroom management were three salient characteristics guiding principals' preferences for hiring candidates in a shortage context. Across these preferences, I observed key differences between elementary school principals, who were more likely to emphasize classroom management than principals at the secondary level, who prioritized subject area expertise and teacher-student relationships. Although other preferences were noted, such as the ability to develop relationships with the community, technological skills, and being a team-player,

principals' narrow set of preferences suggest the shortage context limited their range of preferred characteristics.

The findings from this section show some degree of incongruity between principals' expressed preferences and their actual hiring decisions where, perhaps, in an ideal labor market context principals' expressed and revealed preferences would align. In turn, the next section discusses principals' hiring decisions and practices.

School Leaders' Hiring Practices in Contexts of Shortages

The findings in this section build on the previous two sections to describe principals' hiring practices in contexts of shortages. I identified three types of hiring practices, which were categorized as *intentional hiring*, *creative hiring*, and *transactional hiring*. This conceptualization of hiring practices in contexts of shortage extends Engel and Curran's (2016) guiding framework by identifying additional hiring responses.

Intentional Hiring

To operationalize intentional hiring practices, I drew from Engel and Curran's hiring framework as a template to identify the set of steps taken to recruit and hire teachers (see chapter two). Intentional hiring involves information-rich hiring processes used to proactively identify and select teachers based on a candidate's credentials, background, and skills. Although none of the principals in the study sample exemplified the full set of hiring practices from Engel and Curran's framework (see Table 6), I highlight intentional hiring as an important finding signifying principals' attempts to achieve these practices. In other words, in an ideal labor market context perhaps a greater number of principals would have demonstrated more strategic hiring practices.

Table 6. School Leaders' Intentional Hiring Practices Shortage Contexts

Hiring Practice	**No. of Principals**	**No. of Elementary Schools**	**No. of Secondary schools**
Always working on teacher hiring	15	8	7
Begin hiring by March or earlier	23	14	9
Require a sample lesson; teaching demonstration	0	0	0
Include a content-area specialist or grade-level representative on the hiring team	8	2	6
Ensures candidate is knowledgeable in content-area	12	5	7
Asks referrals from current faculty	16	10	6
Uses internal networks	10	4	6
Uses external networks	5	2	3

Note: Adapted from Engel & Curran (2016)

For principals in this sample, intentional hiring was characterized by one principal as the need to "work diligently to find certified people that are going to meet the needs of our students and fit in our school." Hiring early, for example, was one way all principals in the study worked diligently and took proactive steps to hire. Additionally, while all principals preferred teachers with strong instructional skills and content-area knowledge, about half (12 or 52%) reported they asked tailored interview questions on instruction or closely examined objective measures to determine a candidate's teaching potential. None of the principals mentioned they required prospective teachers to teach a sample lesson.

Using the full range of these practices would ideally offer principals maximum information about potential candidates. But given the short supply of teachers and principals' perception of the overall quality of teachers, intentional hiring practices seemed more aspirational than actual. Even when principals tried "to be ruthlessly selective in hiring" or

attempted not to settle, principals still faced a number of staffing challenges that limited their ability to assess how well a candidate might fit the work environment.

Contrary to Engel and Curran's findings (2016), I found that principals across the districts, regardless of school demographics and resources, had challenges engaging in intentional hiring within the context of shortage. In Davis, a well-sought out district, an elementary principal stated she "had a bunch of interviews that haven't really panned out" and, as a result, ended up hiring a less-than-ideal candidate because "we didn't have a choice." Similarly, another principal in Hargrove who was in the process of hiring noted she already interviewed 15 candidates for positions in the next school year, but explained that her approach to hiring had shifted to a more holistic approach given the policy environment:

> We don't go into it looking like these six interviews are for this job or for that job, we look at it as, which of these 15 people will fit [school] the best. Who's going to fit our culture? Who's going to do the best for our kids? And then we hire who we feel will fit us better.

In other words, rather than hiring for a particular position, this principal approached hiring by casting a wide net, and then, sorted teachers based on who would fit her school environment. In what follows, I discuss three of the most dominant strategic hiring practices, which include the use of internal networks, hiring committees, adjusting interview protocols, and hiring early.

Networks. In addition to asking referrals from faculty, 15(65%) of principals used either their internal networks (within district contacts) or external networks (contacts outside of the district) to recruit teachers or get information about candidates. As previously discussed, principals with fewer staffing challenges used strategic networking with teacher preparation programs, rather than their principal networks. Partnerships with certain teacher preparation

programs, for example, eased some of the uncertainty associated with mid-year turnover. When a teacher quit in February, one principal in Rollins stated, "I called my friend who was in charge of student teachers at the university and said, '*Hey, I need a teacher.*'" Maintaining a close relationship with this preparation program enabled the principal to hire a recent graduate of the program to begin working in January.

Despite principals' sense that hiring was becoming increasingly competitive, ten principals used internal hiring networks by sharing information about potential candidates. Specifically, a principal in Hargrove noted that "when we have a difficulty, I reach out to my peers… if I interview five people for a job and I chose one person, we do a really good job of writing up about that person to say, hey, this person would fit this, this, and this…. I call it my principal friend group." Indeed, other Hargrove principals mentioned this shared, internal network acknowledging that the "rule of thumb is we don't take from ourselves." Surprisingly, contacting principals in external networks was less common, perhaps due to the overall state wide shortages.

Hiring committees and interviewing. As noted in previous studies (Engel & Finch, 2015), the use of hiring committees reflects tenets of distributed leadership and serves to strengthen hiring for greater organizational fit. Eight principals used hiring committees comprised of multiple stakeholders (teachers, students, or active parents). As one middle school principal explained, hiring committees were useful to achieve the best team dynamic and "find the right fit of what works." Unlike the previous discussion of fit in terms of principals' preferences, principals also discussed fit with regard to hiring to underscore *person-organization fit*. That is, how well a teacher's attitude and disposition matched the existing dynamics of the school, department, or team.

To authentically gauge fit, several principals mentioned their interview questions changed to better capture key characteristics of their school culture. One veteran principal reflecting on her interviewing practices noted:

> Our line of interview questions has really changed in the last few years…we used to really harp on theory and things like that, knowledge of the curriculum and of the content, but we have found that if we can ask questions that will lead us to peak at your character, then it works out better for us in the long run and in the end.

Similarly, a principal working in a low-income school noted he became more intentional and "very selective on the type of questions that we're asking." Doing so, allowed the hiring committee to assess "how do they relate to students of diverse populations… you can kind of watch and gauge their reactions to determine if they are going to be a good fit." Despite the broader circumstances in the TLM, principals used the interview as a tool for intentional hiring and changed their interview practices to accommodate the teacher shortage policy environment.

Timing or Hiring Early. Research has previously suggested school leaders engage in late and rushed hiring (Liu & Johnson, 2006). However, setting timelines for early hiring was the only component of intentional hiring observed for all principals in the sample. But it was difficult to discern whether principals changed the timing of their hiring window for competitive reasons "to get a head start of everybody else" or because doing so allowed them to better evaluate candidates' ability. Some principals believed hiring early was necessary and, in fact, a response to the state policy environment because well-qualified teachers were "just not out there in the numbers they used to be." Noting the significant decrease in attendees at their recent job fair in March, one high school principal rationalized "the earlier we post, the earlier we can have people apply, the earlier people apply, the earlier we can interview and make offers."

One of the district administrators who served as the human resource officer for his district, asserted "if you're waiting until May to post positions, then the applicant pool is going to be even more shallow than it is now." Indeed, this administrator took several steps to recruit early: began recruiting in December by reaching out to teacher preparation programs, advised principals to make early assessments of who was leaving or staying in their schools, and had already organized a district job fair and was contemplating hosting another job fair because "now with the teacher walkouts and strikes, we might see a lot of changes ahead." Principals consistently agreed that: "You don't hire in June, you don't hire in July because the best teachers are gone…if you're looking for people in July, you're in trouble." The shortage context therefore normalized early hiring.

With limited funds for new positions, principals also hired early because it enabled them to organize staff and make teaching assignments accordingly. One elementary school principal explained she tried to hire as early as possible because it allowed her to "see who I need to move around for next year…if I need to add or take a way a class, it's better to know that sooner than later." Principals' uncertainty about turnover and teacher supply not only encouraged early hiring, but forced principals to adopt creative hiring practices to meet staffing needs.

Creative Hiring

When principals encountered challenges that impeded intentional hiring, I found that principals instead engaged in creative hiring practices. I define creative hiring as strategic efforts that involved novel and informal mechanisms used to ensure that the best possible applicant was hired. As one middle school principal explained: hiring in this context required "some outside of the box thinking" where "you just have to be creative…anything you can do to market yourselves and get them [teachers]. Get your name out there." Principals' level of creativity

depended on the degree to which they perceived the severity of the shortage, and to some extent, their ability to utilize district resources.

A primary driver of creative hiring was principals' perceptions that the TLM was becoming increasingly competitive. As one principal in Rollins explicitly stated, "the shortages have made things more competitive for principals because we are all fighting for the good ones left." For another principal in Hargrove, the competition made him feel like "it's getting to be a dog eat dog world." To respond to these pressures, principals held or attended multiple job fairs (rather than a single fair like in years before), hosted informal meet and greets, or gave temporary teachers longer term contracts.

District administrators also confirmed the increased sense of competition by describing practices that included "cold calling applicants before they even know that there's a job," which then allowed some principals "to get out into the job pool earlier than some of the surrounding districts." For some principals, adjusting to this competitive environment entailed a different approach to human resource management since, according to one middle school principal, the pressures "forced a lot of us to be hyper competitive and proactive." When asked to elaborate on what being proactive entailed, he asserted "that you can't sit back and wait for teachers to come work at your school," rather, "you have to go find them."

Principals' sense of competition to enact creative hiring was also exacerbated by nearby districts who shifted to four-day work weeks due to budget constraints, which, several principals believed "puts us at a competitive disadvantage in hiring people." Although none of the sample districts adopted the four-day work week, principals understood the rationale and impetus for why many districts elected this option. Nevertheless, they believed it offered some teachers "a tremendous incentive" to work in those districts. At the district-level, both district administrators

suspected that only a small percentage of their teachers transferred to these districts to take advantage of the shorter work week, but these claims were unverifiable. At the state-level, state Superintendent Joy Hofmeister noted the four-day work week was "a short-term, promotional tactic to attract teachers at the expense of kids" and was, unfortunately, "spreading like a contagion across Oklahoma as a statewide teacher shortage solution" (*Tulsa World*, April 12, 2017).

Another creative hiring practice exercised primarily by principals in Davis—a higher-resourced district—was leveraging the school's neighborhood and community context to recruit and hire teachers. Whereas school leaders in Hargrove believed teachers' negative perceptions of their schools constrained principal's ability to recruit teachers, schools in Davis and Rollins held different social status in the TLM. In turn, one Davis principal admitted one way of drawing candidates was to "woo them" by "selling the district, hoping they'll pick us." Doing so, broadened principals' recruitment pitches, allowing them to focus on other aspects of teachers' preferences such as community support (i.e., "being in a community that supports education") and administrative support where the "administrator has your back and supports you." Another selling point for principals in Davis was salary and the district's ability to "pay well above the state on the salary schedule." This incentive, in addition to the district's reputation, afforded principals greater selectivity in their recruitment and hiring practices.

Transactional Hiring

The last type of hiring practice observed in this study was transactional hiring, which I define as selection practices borne out of desperation and the urgency of satisfying current staffing needs. Principals engaged in transactional hiring when they had multiple vacancies and felt they had few quality options in the supply pool. To capture the essence of transactional

hiring, one principal in Spalding described this process as "triage hiring" because "you need somebody in there so that you have a body in the class, but they're definitely not super qualified. They're just better than what else is out there and available." These positions were often filled by student teachers, long term substitutes, or emergency certified teachers—most of whom were "the last option" for some principals. Transactional hires were common in subject-areas like special education and varied based on school context or the district's capacity to draw teachers.

Transactional hiring was influenced more by desperation than deliberation, especially when principals had existing vacancies. Indeed, one elementary principal describing his anxiety about hiring felt he was "always scrambling" because "you get up in the morning and check, check the online stuff, and call every day. That's the first thing you do in the morning. Check to see if there's anybody new because you want to be the first to call, right?" The principal went on to explain that he could not afford to spend a great deal of time contemplating the merits of a candidate, because even if "they're halfway decent," he must "offer them a job before they walk out the door because the next person is going to offer them a job on the spot." Changes in the quantity and quality of the teacher supply prompted principals' engagement with transactional hiring, although many were reluctant to do so, but felt they had little choice.

Recognizing this shift in the labor pool, it was common for principals across the sample to suggest "we are now offering jobs to people that four and five years ago would've never even interviewed." Indeed, one of the district administrators echoed this sentiment, acknowledging that many applicants,

> have good intentions, but they're just poorly skilled individuals and you still got to look at them and think, I need a special ed teacher or I need a high school math teacher. And

so, people that normally you wouldn't even bring in for a first interview are getting hired and getting hired early.

The difficulty in finding teachers who met all of principals' qualifications (i.e., strong content knowledge and teaching skills, great with kids, and classroom management) made "settling" a key component of transactional hiring. In one case, an elementary principal in Spalding concerned about attracting candidates to her school given the larger populations of low-income students, told her district administrator she was "disappointed that I feel we are starting to settle for whatever you can get." Principals in schools with similar demographic makeup engaged in more transactional hiring or noted they made more tradeoffs about teacher quality in order to fill an immediate vacancy in their school.

A final element of transactional hiring reflected labor temporality, or principals' sense that hiring a teacher "for two or three years is better than no teacher at all." Ultimately, this logic undermined notions of fit and organizational sustainability. As evidenced in Liu et al.'s (2008) study, at least six principals expressed making a transactional hire as a temporary arrangement. Principals also enacted elements of transactional and creative hiring practices simultaneously in which school leaders made strategic decisions out of desperation, but based these decisions on the teacher's demonstrated ability. For example, a middle school principal mentioned he "paid for a teacher's certification like out of my own pocket because I needed that teacher for that position. I needed her to stay here. So I paid all the fees to get through the State Department fast." Overall, these hiring practices demonstrated actions principals took to ensure qualified candidates filled vacant positions in their schools.

Section Summary

This section sought to address how principals acted upon their preferences when making hiring decisions in context of shortages. I found the shortage context negatively impacted principal's ability to enact intentional or strategic hiring practices as outlined in previous literature (Engel & Curran, 2016). However, by identifying creative and transactional hiring as additional perspectives to hiring practices, findings extend work on human resource management in education and revealed ways in which the policy environment shapes teacher selection and hiring.

School leaders' Organizational Responses in Shortage Contexts

The final section of this chapter addresses the third research question: what organizational strategies do school leaders use to reduce shortages and retain teachers? As noted in chapter four, principals encountered several organizational challenges associated with the teacher shortage policy environment, such as mid-year turnover, staffing gaps of experienced teachers, and greater organizational pressures that induced job stress and low morale. Principals demonstrated three types of organizational responses related to these challenges: instructional, relational, and district-level responses, each of which is discussed below.

Instructional Responses

Improving student achievement and success is central to effectively organizing schools for stability. However, the quality and quantity of the teacher supply required principals to strategically place teachers in classes or with teams to achieve the best possible outcome for student growth. Instructional responses frequently involved grade switching or moving teachers between grade levels to accommodate staffing needs. Reallocating staff and reorganizing

classrooms seemed to be a complex and ongoing negotiation of "trying to figure out who fits best where."

It is likely that principals in all contexts carefully consider their teacher placement and assignment practices. However, teacher shortages amplified these organizational considerations as principals sought to prioritize organizational stability and student achievement. One main concern with reallocating staff was ensuring underqualified teachers were not concentrated at one particular grade level or in a subject-area as principals believed this could place additional pressures on experienced teachers. In schools with greater shares of new or emergency credentialed teachers, principals assigned teachers to work with veteran teachers whenever possible but were intentional about distributing these teachers evenly. Another distributional challenge related to mid-year turnover. When teachers left mid-year, principals had to consider the long term impacts of either hiring a long-term substitute or splitting classes up, which could exacerbate workload as class sizes increased. Faced with these ongoing challenges, one elementary principal commented, "you have so many scenarios that you have to play through just depending on who's out there to hire." Each scenario presented both advantages and disadvantages that affected teaching and learning.

To make sense of these multiple staffing and organizational negotiations, one elementary principal in Hargrove said, "at this time of year, I become almost like a major league baseball manager where you have to have plan A, plan B, plan C. If I can't get a teacher hired here, I know I have this teacher I can move over there." To be sure, these negotiations and organizational decisions lessened for some principals as the year progressed and vacancies were filled, but for others, remained an ongoing component of school leadership and management. For example, with a math position vacant for almost five months, one high school principal relied on

a long-term substitute to fill the vacancy, while an instructional coach supplemented lesson planning and visited classes on a weekly basis. This high school also had two other open vacancies and experienced more mid-year turnover than all other secondary-level schools in the sample.

The effects of increased class size also added to principals' rationale and decision making about moving teachers around for instructional purposes. For example, an elementary school principal presented a unique scenario that aptly described how class size, as well as her concern for student achievement, influenced how she moved teachers around when there were no additional funds to hire a new teacher:

> First grade last year had 27 kids in each one of the classrooms and we had three classrooms, so 27 is way too many to try to teach kids how to read and have them be successful. So this year, we got a little creative and we took one of the second grade teachers and she is teaching a first grade/second grade blend because we needed to reduce the number of second graders that would be coming up the ranks there…Then, we took the kids who were kind-of on that bubble of reading—on grade level or reading just below grade level. So we took those kids and we put them in her classroom with some of the higher achieving first-graders so that they're all kind of on the same level. So now the teacher is able to teach the first-graders second grade content, making sure that they're mastering the first grade standards, but also giving them a little bit of a leg up on second grade as well.

This extended quote illustrates the elaborate ways principals aimed to organize schools, while trying to maintain manageable workloads for teachers. With four other elementary school

principals describing similar organizational tactics, these complex moves were more frequent and seemingly easier to make in elementary schools than middle and high schools.

At the secondary levels, principals' instructional responses had different consequences with direct implications for teachers' jobs. Therefore, in an effort to preserve teachers' livelihoods, secondary principals mentioned they preferred to eliminate elective courses, rather than cut a position. As one middle school principal explained "in my building, you have to look at what we can do to not have to cut teachers, to kind of try to save positions, and to cut corners wherever you can. You try to keep all your positions if you can. So electives are the sacrificial lamb." Cutting electives rather than positions was one mechanism by which principals buffered teachers from the policy environment and attempted to maintain a stable workforce.

Relational Responses

With teacher morale "at an all-time low," principals engaged in relational responses that emphasized the social aspects of staff development and principal-teacher relationships. Relational responses sought to increase teacher morale through motivational processes and work engagement to demonstrate appreciation and improve teachers' vigor and dedication. These responses included providing teachers more voice in decision making, offering teachers opportunities to work at home on professional development days, celebrating perfect attendance, hosting monthly faculty luncheons, establishing more collaborative teams, and contacting local businesses to donate meals or items as "small gestures of appreciation." Indeed, one elementary school principal in Hargrove referred to these small gestures as "soft compensation."

Teacher morale. Principals were "acutely sensitive to the pressures that teachers are under right now" and as a result, most principals made efforts to improve teachers' psychological and emotional connectedness to schools. Believing the environment demanded a different

approach to leadership, an elementary principal described the emotional and psychological shift that occurred in his leadership style:

> we're [leadership team] more mindful and cognizant of the whole person and who they [teachers] are. I don't know if we used to worry too much about them when they left the school building before, but now, we're more concerned with their mindset and how they are. We check in mentally and see what's going on. So we do more talking about that.

Likewise, a middle school principal in Rollins mentioned that his administrative team also shared similar concerns about how best to respond to teacher morale. The principal and his administrative team therefore "discussed ways in which we can, you know, for lack of a better term, lighten the mood at school or try to alleviate some of the extra burdens that a teacher may have." Although he acknowledged that teacher morale was not as low in Rollins as it was in other districts, still, he believed that "it's more of an outside issue for our teachers at [Rollins]." As previously discussed in chapter four, most principals believed teacher morale reflected "an external force at play" and therefore, felt limited in their ability to respond to the challenges that stemmed from the state policy environment.

Relationship building. Principal–staff relationships and interpersonal interactions are central to positive school climates (Bryk & Schneider, 2002; Marinell & Coca, 2013; Simon & Johnson, 2015). Discussing the state of turnover in Davis, one principal believed school leaders should focus on relationships to ensure stability: "It's all about relationships…and supporting teachers to make sure they thrive…it doesn't matter if it's admin to teacher or teacher to teacher or teacher to admin or the families or teacher to students." Focusing on principal-staff relationships helped to ease the frustrations associated with shortages, but had other advantages as well. One middle school principal suggested that his efforts listening to teachers and providing

his support throughout the walkout, afforded him "more teacher buy in" when they were faced with the difficulties of bigger class sizes or when teachers had to "take on different electives when I moved teachers around to alleviate not having enough staff." Although principals did not completely shift their leadership approach to reflect new styles of leadership, nine principals discussed ways in which the broader context heightened more affective aspects of their leadership.

Principals sought to develop a "good culture among the staff" as another way to boost morale. This was an important priority for a high school principal in Rollins who sought to make "sure that we work for the staff to make it a sense of family and working with each other and not having those islands, those cliques or anything like that." Principals did not explicitly state whether these collaborative practices were related to the shortage context, but of the five principals who emphasized more team efforts, three principals consistently mentioned collaboration as a specific component of the school's retention plan.

Although building positive relationships to increase teacher morale is seemingly good for school culture in this (or any) context, principals also expressed a downside with regards to teacher evaluation and instructional feedback. Several principals acknowledged they were "more cautious about the feedback I give to teachers" because they did not want to "give teachers more reason to want to leave." In other words, some principals felt the shortage environment, in addition to low teacher morale, limited the kinds of instructional feedback and evaluation they could provide. As one principal noted, these tensions made him feel "like we're walking on egg shells," while another explained the impact on his leadership:

> We are so fearful of losing a quality teacher, you know, whereas in the past you would be more constructive, helping a teacher grow to become more instructionally effective. I'm

very wary that I am going to have a teacher take that in a negative way and not be very responsive to feedback.

These quotes reveal the trade-offs or, as some principals described, the "sacrifices" they made to maintain a stable teaching staff. The reluctance to evaluate teachers and offer critical feedback illustrated another way the shortage context undermined school leadership.

District-level responses.

Unlike other sectors where employers can offer a range of incentives and enact changes to effectively address worker retention, principals, for the most part, are limited in making system wide changes to address teacher shortages. This inflexibility constrained principals' ability to develop innovative, school-level responses to shortages since principals were limited in their roles. On the other hand, district superintendents or administrators had greater authority to guide district policies and practices. Indeed, one high school principal expressed her frustration in not being able to do more: "we can't change much in Oklahoma, all of the decisions about teacher pay, the strike, and whatever else either comes from the district or our superintendent or the state, which is a whole other story." As such, this section shifts analysis to the district-level to highlight district-wide efforts to increase teacher supply and workforce stability.

Workforce incentives are commonly used as levers to address shortages (Kolbe & Strunk, 2012; Rice et al., 2008), but districts had few fiscal mechanisms in place to strategically address and respond to teacher shortages. Although all four school districts paid teachers above the state minimum, only two districts (Davis and Rollins) provided recruitment incentives, which were further limited to teachers in particular subject areas (math, science, or special education). Teachers in Davis also received early notification bonuses (up to $500) for declaring their intent of staying or leaving the district by February. Additionally, with the exception of emergency

certification, other supply-side policy responses included in Oklahoma's state-level teacher policy package (i.e., re-entry options for retired teachers and provisions for hiring part-time teachers) (see Table 1) were rarely discussed as additional options. Only two Hargrove principals made use of these policies by hiring a retired teacher. Considering the number of principals who experienced mid-year turnover and had current vacancies in their schools, this was a surprising underuse of existing policies to fill gaps in supply.

District level actors had an important role in setting the policy agenda for how principals would respond to shortages. Discussing the impact of budget cuts on her district, one high school principal emphasized the priorities her superintendent outlined relative to arts and athletic programs: "That was something [the superintendent] really wanted to make sure, like we weren't going to cut music, and we weren't going to cut any kind of athletics because this affected opportunities for kids." These priorities then shaped how she approached school-level organizational practices, in that, she first eliminated positions based on pending retirements and then cut positions for those teachers who intended to leave. In doing so, she attempted to "even it out across the board without losing a program" in her high school. In fact, maintaining conservative operating costs was a consistent district-level response to ensure fewer classes or positions were cut.

The last district-level response included a more streamlined focus on retention through professional development. These activities alleviated some of the job stress associated with shortages as well as principals' concerns about underprepared teachers. Although all four districts already had various professional development programs or opportunities in place, principals highlighted ways in which some professional development efforts were tailored specifically to "keeping teachers in the classroom" and avoiding burnout. In addition, principals

noted that allowing teachers "to have a little bit of a say in what their curriculum looks like" bolstered teacher voice and signaled to teachers they were valued. Relatedly, implementing more collaborative practices led one elementary principal in Hargrove to conclude that the "community atmosphere" and design of professional learning communities (PLC) in her school worked to "improve how we teach students, but it's also created a safe space for teachers to express their concerns and frustrations." At a time when principals observed teacher morale at its lowest, the collaborative nature of PLCs had some impact on improving staff relations and producing a sense of togetherness among teachers.

Section Summary

This section explored organizational stability in contexts of shortages by outlining various instructional, relational, and district-level responses. Importantly, the underlying aim of these organizational responses sought to improve the quality of the existing labor supply, but the extent to which these responses worked to empower teachers or increase job satisfaction and long-term commitment is a limitation of this study. However, as I have argued throughout this study, the onus of providing empowering work experiences is not limited to school and district level actors alone.

Findings from this chapter show that school leaders' recruitment, hiring, and organizational practices are constrained by the state policy environment, but through their sensemaking processes, principals develop various coping mechanisms to counter the effects of shortages. In the next section, I discuss the state policy environment alongside findings from chapters four and five to develop a more comprehensive understanding of teacher shortages and school leadership.

CHAPTER 6: DISCUSSION

Theoretical, Policy, Research, and Practice Implications

This study explored teacher shortages in two unique ways. First, this study began with the assumption that state policies and actors influence TLMs by governing features that shape teacher supply. Using an embedded case design to ground these assumptions, I found school leaders did indeed pinpoint the state context as an important driver of teacher shortages in Oklahoma. A second aim of this study shifted analysis from the state-level to explore the impact of teacher shortages at the local-level and specifically, on school leaders' human resource management activities such as, recruitment, hiring, and school organization.

Drawing from a theoretical approach comprised of cultural political economy, precarity, and sensemaking perspectives allowed me to situate the state and local environments in which school leaders were embedded. Exploring shortages from this micro-macro perspective extends current research by pinpointing ways that teacher shortages drive precarity in school leadership and destabilize TLMs. What follows in the next sections are a discussion of the findings as they relate the existing research as well as implications for future research, policy, and practice.

Theoretical Implications

Shortages drive precarity. This analysis differs from previous studies on teacher shortages (turnover and/or attrition) by drawing attention to the state policy environment driving shortages and its impact on school leaders' practices. Though previous studies explore how shortages affect school organization, student achievement, or teacher behaviors, the effect of shortages on school leadership has been theoretically ambiguous with few studies examining this question. The current study found that shortages constrained school leadership in significant ways and contributed to a state of precarity.

Existing theorizing on precarity and precarious employment do not focus on employers or hiring managers. However, as a process or state of being, precarity is associated with a general sense of uncertainty. Findings from this study highlighted precarity as "a source of individual and social vulnerability and distress" (Wilson & Ebert, 2013, p. 263). Shortages fostered a great deal of uncertainty for principals as they coped with the different impacts of teacher shortages on the daily operations of schools. This uncertainty required that principals make various micro-negotiations (Coburn, 2005) about teacher selection or school organization as they dealt with the effects of mid-year turnover, for example. What was previously conceived as an episodic event, with teacher hiring typically occurring several months leading up to the start of the school year, principals experienced a sense of constant hiring throughout the year to fill staffing gaps. Thus, much of principals' uncertainty stemmed from the challenges of managing schools and maintaining stability in a context where teacher satisfaction and morale was significantly low.

School leaders are often conceived as district intermediaries or middle managers (Coburn, 2005; Spillane et al., 2002). Indeed, I found principals attempted to buffer or moderate the effects of teacher burnout by enacting more relational and affective responses. Principals also used teacher shuffling tactics and other spatial arrangements to bolster collegiality and minimize alienation. Although principals found ways to diffuse cues from the state environment, some principals had difficulty navigating these external pressures in their roles as middle managers, instructional leaders, or district and state liaisons. In this way, principals' intermediary status led to role ambiguity (Hogg, 2000), which can also be perceived as an outcome of labor market precarity. For example, principals discussed the challenge of operating school budgets, while making decisions about class size or cutting a course that would affect a teacher's life

circumstance. Thus, sensemaking perspectives provided a useful lens to understand how principals made sense of their role as school leaders in relationship to this policy environment.

Additionally, despite research suggesting school leaders have a profound influence on teacher retention, this study extends our understanding of school leaders' capacity to retain teachers in critical shortage contexts as many principals felt the state policy environment rendered them powerless to change the policies and structures driving teacher shortages. Even within their school contexts, principals' reluctance to offer constructive feedback or dismiss ineffective teachers stemmed from the fear of losing more teachers. Principals across all districts suggested they had little control over the external factors that led to Oklahoma's critical teacher shortage, thus contributing to aspects of leadership precarity.

Shortages destabilize teacher labor markets. This study illustrated how teacher shortages can be viewed as an organizational shock or jolt with differential impacts on leadership. As anticipated, teacher shortages negatively impacted the quantity and quality of the pool from which school leaders had to choose, but shortages destabilized the TLM in such a way that the rapid decline of teacher supply was perceived as an exogenous shock to the market. Like with any organizational disruption, individuals make sense of uncertainty based on prior experiences and the scripts within their environment (Maitlis & Christianson, 2014; Weick, 1995). When principals compared previous attendance at job fairs or made references to the availability of better qualified candidates in years past, for example, these past references illustrated principals' inability to cope with the overall changes brought on by the current shortage crisis.

Additionally, this study confirmed the uneven ways shortages can destabilize particular schools within a TLM. As illustrated in Holme et al.'s (2018) study on teacher turnover,

principals' responses to shortages may differ based on whether the shortage is temporary, cyclical, or chronic. Perhaps in contexts where shortages are permanent features of the local TLM as evidenced by chronic turnover, school leaders might develop different coping mechanisms and strategies to navigate recruitment, hiring, and organizing schools. For example, rather than shuffling teachers to meet an immediate staffing need, districts might employ more long-term substitutes or use non-profit organizations like City Year to fill vacancies instead of making a transactional hire. Still, these are temporary solutions to permanent problems. When shortages lead to chronic instability there are deleterious effects on student achievement as well as principals' ability to develop cohesive staff structures (Allensworth et al., 2009; Ronfeldt et al., 2013).

The overall nature and impact of shortages as evidenced by within-year turnover adds to recent studies exploring this phenomena. Henry and Redding's (2018) study show that teachers who depart from December through April have the most harmful effects on achievement with some variance based on school level and subject area. Teachers hired after the start of the school year also encounter greater challenges with curriculum development and becoming acclimated to school and district operations (Papay & Kraft, 2016). The extent to which this type of turnover impacted student performance is yet to be seen in Oklahoma's schools, nevertheless, this case study provided important insights on the effects of within-year turnover on school leadership. Furthermore, this study encourages additional research on the costs of mid-year turnover because continuously hiring new employees is a financial drain on schools given the human capital losses associated with replacing new teachers (Barnes et al., 2007). And as principals noted, there are other organizational costs associated with reduced time-use as principals are pulled out of the

classroom and into administrative tasks and organizational management (Horng, Klasik, & Loeb, 2010).

Not surprisingly, some schools and districts had better recruitment and retention outcomes than others. One explanation for these differences is the relationships some principals cultivated with specific teacher preparation programs. The strong connections between schools and preparation programs enabled some principals to draw from a more stable pool of candidates thus reducing the impact of shortages on recruitment and hiring. Other explanations suggest school size and capacity played important roles in meditating the impact of shortages. For example, schools with smaller staff and less capacity might face challenges maintaining a well-run social media presence to recruit teachers, provide mentorship opportunities to new teachers, or offer current teachers innovative professional development activities to prevent burnout. Additionally, more shortages and staffing challenges in certain schools limited the extent to which principals were able to fully assess the work environment for organizational effectiveness thereby creating poor feedback loops between teachers and principals about job satisfaction and work culture.

Another aspect of market destabilization is the way in which shortages weakened principals' recruiting and hiring signals. Principals, like other employers, have objective and subjective preferences for particular candidates. These preferences or selection characteristics are signals that indicate to employers which of these observable characteristics may be altered (Spence, 1978). By highlighting principals' expressed preferences and the conditions in which hiring decisions are made, findings provide a more nuanced understanding of principal selection and hiring practices. With increasing numbers of new and inexperienced teachers entering the labor pool, many principals made trade-offs about teacher quality signals instead resorting to

"coaching up"—a practice also identified in Engel's (2013) study of hiring practices in Chicago. Principal's engagement with transactional and creative hiring practices show that academic indicators were not necessarily undervalued as noted in previous studies (e.g., Ballou, 1996; Baker & Cooper, 2005), but the shortage context weakened principals' selectivity for particular teacher quality preferences.

Although signals for teacher quality were traded off for other preferences, most principals articulated the critical nature of fit, namely person-job and person-organization fit, and were less likely to compromise on these preferences. Given that none of the principals in the study sample demonstrated all of the strategic recruitment and hiring practices in Engel and Curran's (2016) model, it might appear that preferences for fit conflict with this framework. Perhaps, in general, it is assumed that when principals emphasize a candidates' ability to connect with students that this preference is oppositional to quality. Although principals did not articulate being good with kids as a component of teacher quality, their regard for relationship building was an important teacher characteristic and was expressed as especially relevant for students of color in Hargrove and Spalding. At the same time, one might argue that some principals' emphasis on this particular characteristic (i.e., being good with kids) is in fact another indicator of how shortages interfered or weakened hiring signals. Ultimately, current findings extend the existing literature on teacher selection by illustrating that principals' perceptions of job fit are not static, but contingent on the broader labor market conditions shaping supply.

In terms of hiring teachers of color to address teacher diversity gaps, most school leaders emphasized hiring the best teachers for students regardless of race. As critical race and policy scholars make clear, colorblindness in education policy does little to change structures and systems that create inequities (Dumas et al., 2016; Wells, 2014). Similarly, colorblindness in

hiring may work to undermine efforts to ensure racial and ethnic diversity in the workforce. Despite acknowledging a need to diversify Oklahoma's teacher workforce, state and district efforts for teacher diversity were achieved in haphazard ways lacking a comprehensive, strategic plan. Therefore, findings encourage school leaders to develop creative strategies to build a more racially diverse teacher workforce.

Perhaps, the most significant indicator of market destabilization in Oklahoma was the rise of state-issued emergency teacher certifications. The conclusion that teacher education and certification holds little value (e.g., Goldhaber & Brewer, 2000; Walsh, 2001) is premature given the value principals placed on recruiting and hiring candidates with some type of clinical training. Across principals' main preferences when looking for candidates—strong instructional skills, being good with kids, and classroom management—teacher training undergirded all of these characteristics.

Principals' mixed feelings about emergency credentialed teachers also suggest policies that deregulate teacher certification by loosening licensure requirements fail to respond effectively to shortages. On one hand, these solutions helped to fill vacancies, but on the other hand, brought additional job stresses associated with training or onboarding teachers. Principals' experiences with emergency credentialed teachers reflected much of what is outlined in the research on fast-entry pathways (Boyd et al., 2009; Ng & Peter, 2010; Redding & Smith, 2016). Specifically, principals confirmed that this group of teachers demonstrated higher attrition, lacked pedagogical skills and strong classroom management, and did not always embody the subjective qualities they sought in typical candidates.

Given the costs to instruction and school organization, hiring emergency credentialed teachers were viewed as last resorts because the cumulative impact of hiring emergency

credentialed teachers far outweighed the immediate benefit of filling a position. Importantly, principals' stressed teacher preparation increased teachers' sense of efficacy, which led to better instructional outcomes for students. Though principals acknowledged that some emergency credentialed teachers proved to be effective in the classroom, this was rare and not usually the case. Ultimately, the study illustrated a greater presence of teachers with low levels of experience and without full licensure may increase the adverse effects of teacher shortages.

Finally, supply-side policies intended to curb teacher shortages by deregulating teacher certification can produce unintended consequences of increasing teacher sorting and tracking mechanisms in the teacher labor market. With more emergency credentialed teachers in Hargrove and Spalding in particular, this study confirmed prior work that underqualified teachers cluster in low-performing schools with more students of color. Additionally, principals' overall reluctance to hire emergency credentialed teachers may present future barriers to mobility if teachers decide to move schools prior to obtaining full certification. In other words, regardless of teachers' on-the-job performance, having been labeled an emergency credentialed teachers may prove to be a tracking mechanism that ultimately sorts teachers into particular schools based on their initial certification status.

The state context as a working condition. From the previous discussions, I emphasized ways in which shortages led to precarity in school leadership and destabilized TLMs. I now turn to a discussion of the state policy context and its role in teacher shortages. Education is a highly politicized field (Apple, 2006; Dumas et al., 2016; Tyack, 1974), therefore it is no surprise that state policies influence TLMs. Previous work, for example, has researched the role of federal legislation and the impact of teacher quality mandates shaping TLMs (Cochran-Smith & Lytle, 2006; Fuller et al; 2017; Grissom et al., 2014; Vergari, 2012). However, this study encourages

researchers and policymakers to actively consider the state context as a working condition that, like schools, have direct influences on educators' decisions.

Beyond salary increases and emergency credentialing, findings revealed that the state lacked a coherent plan to address teacher shortages. The lack of policy alternatives might change the teacher policy landscape in Oklahoma and other states experiencing shortages in problematic ways. For example, previous work links the shortages of the 1980s and 1990s with the growth of alternative teacher preparation programs (Mungal, 2015). As such, this study raises larger questions about how shortages may induce further deregulation within the teacher preparation marketplace. Perhaps the rise of emergency certifications is an antecedent to increased market flexibility that leads to other alternative pathways for teacher entry. With no alternative programs in the state,[13] the shortage crisis may change the state's teacher policy landscape, especially as analysts continue to project challenges in teacher supply (Berg-Jacobson & Levin, 2015; OSDE, 2018). Of course, this is yet to be determined, but states do have an obligation to ensure that policies are amenable to improving teacher supply and quality.

Without the ability to define key features of their job (i.e., compensation, entry requirements), this research also underscored the cultural politics of teaching and teachers' work. Such a frame raises questions about how teachers get embedded in policy. Scholars exploring concepts of professionalism and demoralization argue that teachers' identity is contingent on their ability to maintain autonomy and control over their work experiences as well as the ability to access the moral rewards of teaching (Pearson & Moomaw, 2005; Santoro, 2011). Indeed, findings support researchers' assertion that teachers' feelings of being under appreciated and demoralized are tied to structures of social and professional support embedded within the state

[13] Data from Title II (2018) indicate there are 23 providers and 221 programs for teacher preparation in Oklahoma, all are considered traditional programs based at Institutions of Higher Education (IHEs).

policy environment (Javaid, 2009 as cited in Salifu & Agbenyega, 2016; Newberry & Allsop, 2017). It is no surprise then that the politics of teachers' identity were strongly linked to compensation. Although teacher professionalism and demoralization are constructs not easily measured using quantitative analysis, recent work from Wronowski and Urick (2019) indicate that state (and federal) policies negatively impact teachers' sense of identity, which can lead to increased turnover or attrition. Furthermore, we know from existing research that these constructs intersect with teachers' race and gender, which could further help to identify push factors for teachers of color.

The severity of teacher shortages in Oklahoma presented a unique and politically important case that carries implications for teacher activism and how states invest in public education. Throughout 2018, teachers in West Virginia, Oklahoma, Kentucky, Arizona, and Colorado occupied state legislatures and ran for an unprecedented number of local offices to mobilize greater bottom-up change in education policy (Blanc, 2019). Although shortages were not the only concern or centralizing force in these political efforts, media articles documenting these various strikes show that teachers echoed similar concerns about the deprofessionalization of teaching, low teacher salaries, poor working conditions, and cultural perceptions that undervalued their identities and work. Notably, these 'red state rebellions' (Hansen, 2018) occurred in states with strong conservative leadership, but recent political activities in Los Angeles, Denver, and Chicago (where the first charter strike occurred) demonstrate that challenges facing teachers and schools are beyond partisan politics. Rather, these events point to the full scope of the state's influence on teachers' activism, work, and identities.

Implications for Policy and Practice

Teacher shortages and equitably staffing schools are ongoing policy concerns. Recruiting and retaining public school teachers will require a comprehensive approach to policy and practice to address the unique ways shortages affect local TLMs and school leadership practices. The following section offers two broad areas where policies and practices might address teacher shortages: increasing teacher supply and developing human resource practices.

Increasing teacher supply. A first step in addressing teacher shortages at various levels is to understand trends for teacher entry and exit. Incorporating data systems that track sources of supply – including career paths, preferences, attitudes and perceptions related to public teaching can allow states and local school systems to better understand the nature of teacher shortages. Disaggregated data by multiple teacher variables (i.e., race/ethnicity, gender, work history, role, position, type of certificate, subject area, and degree attainment) can also help to identify gaps well in advance. These data can also be used to tailor recruitment and retention policy efforts.

Recruitment, preparation, and licensure. To respond to teacher shortages, states and districts can reexamine pathways for recruitment, preparation, and licensure. Researchers have advocated for grow-your-own programs to recruit and prepare locally-based teachers (Gist et al., 2019). These pathways tend to attract more nontraditional candidates (i.e., prospective teachers who are not middle class, in early 20s, or attending college fulltime) and teachers of color who, on average, show higher retention rates when they matriculate through these programs. School districts affected by teacher shortages would also benefit from working closely with local colleges and universities to increase the number of qualified teachers in critical subject areas such as mathematics and science. Partnerships with Minority Serving Institutions can also help to address racial diversity gaps in the teacher workforce. Other types of institutional partnerships or

recommendations might include: expanding high quality preparation pathways via teacher residencies or district-based programs; providing additional support and training to existing emergency credentialed teachers to obtain full licenses; and reviewing and strengthen articulation agreements between community colleges and four-year institutions to ensure maximum credit transfers.

State policies can support many of these efforts by subsidizing training or redesigning certification or licensure requirements to reduce barriers for teachers of color and other individuals with classroom experience (i.e., paraprofessionals, long term substitutes, etc.). For example, states might support district programs to offer micro-credentials for instructional support staff, particularly in critical subject-areas or geographical contexts. Tapping into a state's reserve pool of educators (including retired educators) who are not currently working is another strategy to enhance supply. Targeting teachers who reenter the profession, for example, might be a viable policy solution as these teachers are less likely to leave upon reentry (Grissom & Reininger, 2012). With specific incentives tailored to teachers' characteristics and circumstances, the reserve pool can help meet immediate shortage needs.

Incentive packages. Findings from this study confirmed that compensation matters. Teachers will respond to competitive salaries that reflect the cost of living. On July 1, 2018 Oklahoma enacted state-mandated pay raises to stem the tide of attrition, but state legislatures and policymakers should be careful to assume that salary alone will uniformly correct teacher supply challenges. Raising compensation, for example, might not sufficiently address issues of teacher diversity and the underrepresentation of teachers of color in the workforce. Rather, a multi-dimensional understanding of the types of shortages that exist within a particular labor market, along with a wide range of pecuniary and nonpecuniary incentives, will be needed to

address the underlying problems of low teacher supply. Incentive packages should be varied in order to appeal to different stages of teachers' careers, such as: recruitment and retention bonuses, housing assistance, additional retirement credit or higher contributions toward health insurance premiums and retirement accounts. Implementing career ladder programs that provide supplementary incentives as well as opportunities for teacher leadership might also address supply gaps with mid-career teachers. Given the changing nature of work, schools might also consider other incentives that provide options for teachers to facilitate re-entry into the labor force beyond a traditional, full-time equivalent role.

Providing financial incentives might prove difficult in contexts with tight fiscal budgets. However, this study demonstrated ways in which school leaders' use of non-financial inducements through relationship-building can, to some extent, alter working conditions. Promising strategies might include providing teachers with greater autonomy, reducing nonteaching workload, or offering instructional resources for professional growth. State level policy solutions that support relevant professional development, mentoring and induction, and class-size reductions can also improve teacher efficacy and instructional skills.

Human resource practices. One of the key ways district leaders can influence educator quality is through human capital and resource management. At the district-level, there are several opportunities to implement practices that will build principal capacity to attract, develop, and retain teachers. Despite the limited pool of candidates in both quality and quantity, districts can institute better training on teacher selection to build principals' management practices. Improving principals' capacity to identify various dimensions of teacher quality will reduce transactional hiring, which in turn allow principals to adopt more strategic hiring practices. Stronger collaboration between principals and the district's office of human resources could also

facilitate broader recruitment efforts and effective decision-making processes and streamlined norms for hiring. Relatedly, these school-district human resource collaborations might include stronger feedback loops explaining or predicting teacher departures within the internal labor market. This feedback can then be used to help principals make adjustments or design work environments to promote retention.

Implications for Future Research

This dissertation examined teacher shortages at the state and local levels. Findings from the study add to research on the interrelatedness of state and local policies and practices on the teacher labor market, with particular attention to how school leaders respond to shortages through hiring and organizational practices. By identifying additional conceptualizations of principals' recruitment and hiring practices in shortage contexts that were previously unidentified in the literature, findings contribute to new understanding of principals' teacher selection processes. Additionally, this research offers implications for schools experiencing inequitable distribution of teachers and chronic turnover as overall findings reveal the hidden effects of shortages on school leadership and organizational functioning. As such, this study can guide future research examining teacher shortages and turnover. A natural progression of this work is to analyze how these policies actually affected teacher attrition. A quantitative study tracking teacher exit could reveal important indicators about which teachers exited the state and the locational characteristics of the schools where teachers chose to teach. With anecdotal evidence suggesting that many Oklahoma teachers went to neighboring states, such a study would provide more definitive evidence about Oklahoma's mass teacher exit and support a nuanced look at the regional TLM.

Additionally, given that all four districts were of relatively the same size and within the same local TLM, what is now needed is a cross-national study involving different cases of critical teacher shortages, for example, in Arizona or Colorado—states with similar labor market challenges and policies that led to teacher strikes. Importantly, this research could account for ways in which teacher policies play out in different contexts. Indeed, different education governance structures might reveal variation in shortage patterns or, perhaps, if teachers have more collective bargaining power within the state, then, policies would be more responsive to teachers' salary demands. As such, future research can also explore the role of unions and how they mediate state and local working conditions.

Finally, findings generated from the study provide the foundation for more in-depth analysis of principals' real-time hiring negotiations and hiring decisions using sensemaking perspectives. Considering the racial mismatch between students and teachers of color and the uncoordinated efforts to diversify the Oklahoma teacher workforce more broadly, this study contributes to a burgeoning push within the human resources literature to center racial equity in teacher hiring. Greater theoretical insights might inform empirical research on how principals consider racial diversity in hiring. Such research would require a nuanced understanding of inclusion and diversity and how school organizational practices enable or constrain efforts for managing diverse workforces.

Appendix A

Sample Interview Protocol

Purpose of the study: The purpose of this study is to understand school leaders' perceptions and responses to policies in contexts of critical teacher shortages.

Participant & School Background

Tell me about your work history in education.
How long have you been the principal at this school? District?

Shortages: Policy & Perception

How do you perceive teacher shortages in the state?
What factors do you think are driving these shortages?
In what ways do you think this policy addresses teacher shortage?

In the past 2-3 years, can you describe the staffing needs in your district?
Which teacher certification areas are experiencing a shortage or surplus in your district?
What are the most pressing issues?
What are solutions to these problems?

- How do these shortages vary by subject area? Teachers ' experience? Demographics?
- Which schools fare better or worse in terms of shortages?

Hiring & Staffing

I'm interested in learning about how you typically go about recruiting and hiring teachers. Could you describe an ideal teacher candidate.

- What is the process of recruiting teachers?
- When do you do most of your hiring?
- What success or challenges do you experience in recruiting teachers?
- Who participates in recruiting, interviewing, and hiring teachers?
- How do you determine if a candidate is a good fit?
- How would you rate the quality of the applicants that you get at this school within the past 2 years?

What are some staffing issues you've experienced in your school?
Are there specific demographics or subject areas that you have trouble finding/attracting?

- Which aspects of an ideal candidate might be negotiable in this shortage environment?
- What characteristics are non-negotiable?
- What challenges or constraints do you experience because of these shortages?
- How might this level of teacher shortage impact your school? Leadership capacity?
- How have you coped with these shortages?
- What do you do when you have difficulty filling a vacancy?

Organizational Strategies & Minimizing Shortages

What school level changes have you implemented to address teacher shortages?

What types of district -level training are required for teachers post-hire?

Does your district offer induction? If so, what programs do your district and/or school have for teacher induction?

How do these activities differ by for prospective teacher or current teachers? By certification status?

How well do you think these activities address teacher retention?

What types of formal or informal training are offered for teachers in your school?

What school-level supports can a new teacher count on when starting in your school? experienced teachers? By certification status?

How often do these activities take place?

To what extent do these supports work to minimize teacher turnover?

Tell me about your approach to teacher professional development given the extent of shortages (or not).

How do you decide what sort of professional development to offer?

To what extent do you think PD shapes teachers' decision to stay or leave a school?

How do you go about evaluating teachers (informally or formally)?

What kinds of information are you collecting?

How do you process this information for teachers with different skill-levels or years of experience?

What school or district- level resources are available for teachers that specifically focus on teacher retention?

At the end of the school year, what systems are in place to know if a teacher will return?

Overall, to minimize the extent of teacher shortages what actions or changes could be taken to reduce this issue?

Is there anything you would like to add about teacher shortages in Oklahoma, in your district, or in your school?

Could you recommend a colleague or another principal who you think might be interested in sharing their perspectives?

Appendix B

Document Analysis Summary Table

Article	Type of Article	*Source*	Author & Year Published
Across-the-board pay raises sought for Oklahoma teachers as part of new education budget proposal	News Report	*The Daily Oklahoman*	Willert (2014)
Oklahoma City's new school superintendent makes plans to build curriculum staff	News Report	*The Daily Oklahoman*	Willert (2014)
Teacher shortage in Oklahoma can blame more than low pay	News Report	*The Daily Oklahoman*	Habib (2014)
Fixing public education isn't that complicated	Opinion	*Tulsa World*	Fichtner (2014)
Ballard tells Tulsa-area legislators that teacher pay raises are a must	News Report	*Tulsa World*	Eger (2014)
Education Department budget request includes $2,500 salary bump for teachers	News Report	*Tulsa World*	Eger (2014)
McClure, two other Tulsa elementary schools begin year with all-new faculties	News Report	*Tulsa World*	Eger (2014)
School districts seek support workers, certified personnel	News Report	*Tulsa World*	Smith (2014)
Inside an 'F' school, Day 2: Teacher turnover wreaks havoc at high-challenge schools	News Report	*Tulsa World*	Eger (2014)
Tulsa World Editorial: The teacher shortage problem	Opinion	*Tulsa World*	2014

Budget shortfall could hurt Oklahoma's education, health care, agency leaders warn	Featured Article	*The Daily Oklahoman*	Green (2015)
Oklahoma school districts often recruit against each other for teaching candidates	News Report	*The Daily Oklahoman*	Willert (2015)
OSUTeach addresses math, science teacher shortage	News Report	*The Daily Oklahoman*	McNutt (2015)
Budget shortfall could hurt Oklahoma's education, health care, agency leaders warn	Featured Article	*The Daily Oklahoman*	Green (2015)
Edmond school district faces teacher shortage	News Report	*The Daily Oklahoman*	Gust (2015)
Oklahoma teachers jam state Capitol to demand more support for public education	Featured Article	*The Daily Oklahoman*	Willert & Green (2015)
'Enough is enough'	News Report	*The Daily Oklahoman*	Green (2015)
School district chiefs offer incentives to hire teachers	News Report	*The Daily Oklahoman*	Willert (2015)
After years of cuts, school districts face teacher shortages	News Report	*Tulsa World*	Armario & Leff (2015)
Four-day school weeks: Districts weighing benefits, but Hofmeister says it's bad for kids	News Report	*Tulsa World*	Eger & Habib (2015)
Boren sales-tax plan reflects shift in Oklahoma tax base	News Report	*Tulsa World*	Vieth (2015)
Economist: More flexibility needed in teacher salaries for retention in state	News Report	*Tulsa World*	Eger (2015)

Oklahoma's teacher shortage: 600 positions eliminated but 1,000 vacancies remain	News Report	*Tulsa World*	Eger (2015)
Ideas for revising A-F school grade cards, addressing teacher shortage discussed at state education board meeting	News Report	*Tulsa World*	Eger (2015)
State Superintendent Joy Hofmeister addresses teacher shortage, ACT pilot program in Tulsa	News Report	*Tulsa World*	Eger (2015)
Hofmeister predicts budget cuts will have negative effect on students	News Report	*The Daily Oklahoman*	Casteel (2016)
Aides, supporting positions proliferate at public schools	Featured Article	*The Daily Oklahoman*	Felder (2016)
Teacher shortage is a lack of certified, trained educators	News Report	*The Daily Oklahoman*	Felder (2016)
As start of school nears, metro districts try to make best of bad budget situation	News Report	*The Daily Oklahoman*	Willert (2016)
Oklahoma board approves 349 more emergency teaching certificates	News Report	*The Daily Oklahoman*	Willert (2016)
School funding report undermines Oklahoma critics	Opinion	*The Daily Oklahoman*	The Oklahoman Editorial Board (2016)
How can state solve math and science teacher shortage?	News Report	*The Daily Oklahoman*	Willert (2016)
Lawmakers offer preview of legislative session	News Report	*The Daily Oklahoman*	Gust (2015)

STEM teacher shortage persists	News Report	*The Daily Oklahoman*	Kemp (2016)
Oklahoma education sales tax debate heats up ahead of election	News Report	*The Daily Oklahoman*	Felder (2016)
Paradox of teacher hiring in Oklahoma seen in layoffs, emergency certifications	News Report	*The Daily Oklahoman*	Felder (2016)
Your Views Sunday, Oct. 30	Opinion	*The Daily Oklahoman*	Williams (2016)
Keep our student teachers in Oklahoma	Opinion	*The Daily Oklahoman*	Archer (2016)
Oklahoma sets record for emergency teaching certificates	News Report	*The Daily Oklahoman*	Felder (2016)
Byron Schlomach and Baylee Butler: The alleged teacher shortage	Opinion	*Tulsa World*	Schlomach & Butler (2016)
Gist tells state lawmakers TPS will maximize funding before asking for more	News Report	*Tulsa World*	Habib (2016)
Amid statewide teacher shortage, TPS establishes apprenticeship to help grow its own talent	News Report	*Tulsa World*	Eger (2016)
Number of emergency teaching certificates outpacing last year, illustrating teacher shortage	News Report	*Tulsa World*	Hoberock (2016)
Survey shows at least 2,800 education jobs lost, statewide teacher shortage persisting	News Report	*Tulsa World*	Eger (2016)
Teacher reluctantly leaving Tulsa for Texas: 'It's not just salary ... it's about respect'	News Report	*Tulsa World*	Eger (2016)

Amid statewide teacher shortage, TPS establishes apprenticeship to help grow its own talent	News Report	*Tulsa World*	Eger (2016)
Area students talk about challenges education is facing in Oklahoma	News Report	*Tulsa World*	Habib (2016)
Deborah Gist: We have to help our teachers	Opinion	*Tulsa World*	Gist (2016)
Fallin to propose teacher pay raise during Monday's State of the State address	News Report	*Tulsa World*	Hoberock (2016)
Gist tells state lawmakers TPS will maximize funding before asking for more	News Report	*Tulsa World*	Habib (2016)
Hofmeister: 'Low, uncompetitive' teacher pay should have been addressed by lawmakers, not ballot petitioners	News Report	*Tulsa World*	Eger (2016)
Tulsa Public Schools announces it will start the year with zero vacancies	News Report	*Tulsa World*	Habib (2016)
Tulsa-area school administrators push Legislature on missed deadline for education budget	Featured Article	*Tulsa World*	Eger (2016)
Ed Talk: Area school officials discuss hiring, retaining teachers in face of budget challenges	News Report	*Tulsa World*	Stanley (2016)
City Council considers details for Vision Tulsa teacher fund	News Report	*Tulsa World*	Wade (2016)
'Invalid and unreliable': 2016 school report cards released	News Report	*Tulsa World*	Eger (2016)
Jenks school board hears plan for $3.7 million in new budget cuts, elimination of 29 jobs	News Report	*Tulsa World*	Eger (2016)
Colorado teacher shortage holds lessons for Oklahoma	Opinion	*The Daily Oklahoman*	(2017)

Edmond schools drawing from smaller applicant pool	News Report	*The Daily Oklahoman*	Tapia (2017)
In Oklahoma, using emergency certified teachers 'feels like the new normal'	News Report	*The Daily Oklahoman*	Felder (2017)
Teacher retention is low at many Oklahoma City district schools	News Report	*The Daily Oklahoman*	Willert (2017)
Oklahoma lawmakers' votes at odds with financial reality	Opinion	*The Daily Oklahoman*	Unknown (2017)
School uses scholarship, signing bonus to 'grow its own' teachers	News Report	*The Daily Oklahoman*	Felder (2017)
To achieve savings, Oklahoma lawmakers must challenge agency heads	Opinion	*The Daily Oklahoman*	The Oklahoman Editorial Board (2017)
Passion, concern and 'some anger': Tulsa superintendent reflects on state of education after her three days teaching	News Report	*Tulsa World*	Hardiman (2017)
Elizabeth Smith: Teachers Institute fosters professional leadership	Opinion	*Tulsa World*	Eger (2017)
Teachers who leave Oklahoma make $19,000 more on average, OU researcher finds	News Report	*Tulsa World*	Hardiman (2017)
Oklahoma educators disappointed over failure of budget deal that included teacher pay raise	News Report	*Tulsa World*	Hardiman (2017)
Four-day school called a 'contagion': Superintendent Joy Hofmeister wants schools to consider implications	News Report	*Tulsa World*	Pickard (2017)
Deborah A. Gist: An exciting school year begins	Opinion	*Tulsa Word*	Gist (2017)

Appendix C

Codebook

Code	Subcode	Description
	Descriptive Codes	Descriptive Codes
DESC-dis	-Rollins -Spalding -Davis -Hargrove	Case or school district
DESC-role	-principal -assistant principal -district administrator	Respondent role
DESC-gen	-male -female	Respondent gender
DESC-race	-African American -Latino/a -White -Asian -Other	Respondent race or ethnicity
DESC-schlev	-elementary school -middle school -high school	Respondent school level (description of district for district leaders)
DESC-schlcon	-student population -community context	Mentions details about the school and student characteristics (school size); mention of the surrounding area beyond the school. The community outside the school.
CAS SHO	**CAUSES OF TEACHER SHORTAGES**	**Perceptions of why teacher shortages exist**
CASSHO-pertch	PERCEPTIONS OF TEACHERS/ TEACHING	Descriptions of how teachers are valued or how teaching is perceived; status of the profession
CASSHO-dgpol	STATE FUNDING POLICIES	References to the state budget/ funding on shortages an mobility

CAS SHO-mob	TEACHER MOBILITY	Mention of why teachers move to another school, district, state that causes shortages; both causes and frequencies
CAS SHO-cond	WORKING CONDITIONS	References to working conditions that drive shortages (i.e., lack of administrative support, minimal resources, school discipline, teacher evaluations, accountability, etc.)
CASSHO-accpol	ACCOUNTABILITY POLICIES	Related to external accountability and state policies
CASSHO-tchpol	TEACHER POLICIES	Policies linked to teacher shortages (i.e., certification and training); Changes to teacher certification requirements
CAS SHO-sal	SALARY	Role of salary or benefits in causing teacher shortages
TYP SHO	**TYPE OF TEACHER SHORTAGE**	**Descriptions of different types of shortages in schools**
TYP SHO-con	SHORTAGE CONTEXT	Shortage in low income schools
TYP SHO-sub	SHORTAGE SUBJECT AREAS	Shortage of teachers in subject-area fields
TYP SHO-div	SHORTAGE DIVERSITY	Shortage of teachers of color
REC	**RECRUITMENT**	**Descriptions of how principals view and respond to teacher recruitment**
Rec-strat	RECRUITMENT STRATEGIES	Strategies mentioned used to enhance the recruitment of teachers; Specific incentive programs; teacher pathways or or collaboration with teacher preparation programs
HRG	**HIRING**	**Related to teacher hiring, timing, tools used in hiring process, meetings with current teachers**
HRG-pro	HIRING PROCESS	Descriptions of how principals' hiring process (i.e., one-on-one; group hire; video demo; questions they ask applicants, etc.) from start to finish

HRG-stp	STAFFING PRIORITIES	Descriptions of what principals look for when selecting candidates
HRG-fit	FIT	Discussion of how teachers "fit" or within the school
RET	**RETENTION**	**Descriptions of how principals view and respond to teacher retention**
RET-strat	RETENTION STRATEGIES	Strategies mentioned used to retain teachers; Establishment of induction, mentorship, or professional development programs
RET-strat-rel	STAFF RELATIONSHIP	Interactions between administrators and teachers focused on retention or capacity building
RET- org	ORGANIZATIONAL RESPONSES	Efforts to promote long term staffing stability in schools personnel functions: teacher assignment, support, and professional development (i.e., split grades, multiple subjects, or out-of-field classes;
RET-tcheval	TEACHER EVALUATION	Descriptions of supervising and/or evaluating teachers for growth and human capital development
IMP- SHO	**IMPACT OF SHORTAGE**	**Descriptions of how shortages have impacted their role as a school leader, teachers, and schools**
IMP SHO-facomp	FACULTY COMPOSITION	Descriptions of changes in faculty composition; teacher reorganization; shuffling teachers
IMP SHO-tchrol	TEACHER ROLE	Changes in teachers professional responsibilities and expectations, work hours, teachers views on demands
IMP SHO-curr	CURRICULAR CHANGES	Direct or indirect references to changes in curriculum or course offerings due to shortage; impact on learning
IMP SHO-schcul	SCHOOL CULTURE	Expressions of school-wide norms & values including kids, teachers and parents
IMP SHO-mob	MOBILITY	Direct or indirect impact of shortages leading to increased job dissatisfaction;
IMP SHO-tchqual	TEACHER QUALITY	Changes in teacher qualifications that determines job matches
IMP SHO-ledrol	LEADERSHIP ROLE	Descriptions of how shortages have impacted their leadership style, vision, agenda, priorities, purposes, etc. (includes self-descriptions); constraining factors
IMP SHO- neg	NEGOTIATING	Mention of any negotiating factors due to shortages; i.e., mix and match to meet gaps

References

Achinstein, B., Ogawa, R. T., & Speiglman, A. (2004). Are we creating separate and unequal tracks of teachers? The effects of state policy, local conditions, and teacher characteristics on new teacher socialization. *American Educational Research Journal*, *41*(3), 557-603.

Adamson, F., & Darling-Hammond, L. (2012) Funding disparities and the inequitable distribution of teachers: Evaluating sources and solutions. *Education Policy Analysis Archives*, 20(37).

Allensworth E., Ponisciak S., Mazzeo C. (2009). The schools teachers leave: Teacher mobility in Chicago public schools consortium on Chicago School Research at the University of Chicago Urban Education Institute. Chicago, IL: University of Chicago.

Alliance for Excellent Education (2014). On the path to equity. Retrieved from https://all4ed.org/wp-content/uploads/2014/07/PathToEquity.pdf

Anderson, L. M., & Stillman, J. A. (2013). Student teaching's contribution to preservice teacher development: A review of research focused on the preparation of teachers for urban and high-needs contexts. *Review of Educational Research*, 83(1), 3-69.

Apple, M. W. (2006). Educating the "right" way: Markets, standards, God, and inequality. Taylor & Francis.

Aragon, S.(2016). Mitigating teacher shortages: Financial incentives. Retrieved from https://www.ecs.org/wp-content/uploads/Mitigating-Teacher-Shortages-Financial-incentives.pdf

Arnold, D., & Bongiovi, J. R. (2013). Precarious, informalizing, and flexible work: Transforming concepts and understandings. *American Behavioral Scientist*, *57*(3), 289-308.

Associated Press (AP), (1990). Strike by Teachers Over Salaries Closes Many Oklahoma Schools. *The New York Times*. Retrieved from https://www.nytimes.com/1990/04/17/us/strike-by-teachers-over-salaries-closes-many-oklahoma-schools.html

Baker, B. D., & Cooper, B. S. (2005). Do principals with stronger academic backgrounds hire better teachers? Policy implications for improving high poverty schools. *Education Administration Quarterly*, 41, 413-448.

Baker, B. D., & Corcoran, S. P. (2012). The Stealth Inequities of School Funding: How State and Local School Finance Systems Perpetuate Inequitable Student Spending. *Center for American Progress*.

Ball, S., Maguire, M. & Braun, A. (2012). *How schools do policy. Policy enactments in secondary schools*. London: Routledge

Ballou, D. (1996). Do public schools hire the best applicants? *Quarterly Journal of Economics, 111*, 97-133.

Ballou, D., & Podgursky, M. (2000). Reforming teacher preparation and licensing: What is the evidence? *Teachers College Record*, 102(1), 5-27.

Balter, D., & Duncombe, W. D. (2008). Recruiting highly qualified teachers: Do district recruitment practices matter? *Public Finance Review*, 36(1), 33–62.

Barnes, G., Crowe, E., & Schaefer, B. (2007). The cost of teacher turnover in five school districts: A pilot study. Washington, DC: National Commission on Teaching and America's Future.

Behrstock-Sherratt, E. (2016). Creating Coherence in the Teacher Shortage Debate: What Policy

Leaders Should Know and DO. American Institutes for Research (AIR). Retrieved from http://www.air.org/sites/default/files/downloads/report/Creating-Coherence-Teacher-Shortage-Debate-June-2016.pdf

Berg-Jacobson, A., & Levin, J. (2015). Oklahoma study of educator supply and demand. Washington, DC: American Institutes for Research. Retrieved from http://sde.ok.gov/sde/sites/ok.gov.sde/files/documents/files/15-3778_OK%20Study%20of%20Educator%20Supply%20and%20Demand%20Final%20Report%20Revised%2010_12_15.pdf

Boe, E. & Gilford, D. (1992). Teacher supply, demand, and quality: Policy issues, models, and data bases. Washington, DC: National Academy Press. Retrieved from https://www.nap.edu/catalog/2040/teacher-supply-demand-and-quality-policy-issues-models-anddata

Bogdan, R. C. & Biklen, S. K. (1998). *Qualitative research in education: An introduction to theory and methods* (3rd ed.). Needham Heights, MA: Allyn & Bacon.

Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78(3), 367-409.

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). The draw of home: How teachers' preferences for proximity disadvantage urban schools. *Journal of Policy Analysis and Management*, 24(1), 113–132

Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation and student achievement. *Educational Evaluation and Policy Analysis*, *31*(4), 416-440.

Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303-333.

Boyd, D., Lankford, H., Loeb, S., Ronfeldt, M., & Wyckoff, J. (2011). The role of teacher quality in retention and hiring: Using applications to transfer to uncover preferences of teachers and schools. *Journal of Policy Analysis and Management*, 30, 88–110

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40.

Briggs, D., Diaz-Bilello, E., Maul, A., Turner, M., & Bibilos, C. (2014). Denver ProComp Evaluation Report: 2010-2012. *Colorado Assessment Design Research and Evaluation (CADRE) Center and the National Center for the Improvement of Educational Assessment*, 1-132.

Bristol, T. J. (2018). To be alone or in a group: An exploration into how the school-based experiences differ for Black male teachers across one urban school district. *Urban Education*, *53*(3), 334-354.

Brown, K. D. (2014). Teaching in color: A critical race theory in education analysis of the literature on preservice teachers of color and teacher education in the US. *Race Ethnicity and Education*, *17*(3), 326-345.

Brown, A. D., & Jones, M. (2000). Honourable members and dishonourable deeds: Sensemaking, impression management and legitimation in the 'Arms to Iraq Affair'. *Human Relations*, 53(5), 655–689.

Brown, M., & Wynn, K. (2009). Finding, supporting, and keeping: The role of the principal in teacher retention issues. *Leadership and Policy in Schools*, 8(1), 37-63.

Brownell, M. T., Bishop, A. M., & Sindelar, P. T. (2018). Republication of "NCLB and the demand for highly qualified teachers: Challenges and solutions for rural schools". *Rural Special Education Quarterly*, *37*(1), 4-11.

Bryk, A., & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. Russell Sage Foundation.
Bryk, A., Sebring, P.B., Allensworth, E., Luppescu, S., & Easton, J. (2010). Organizing schools for improvement: Lessons from Chicago. Chicago, IL: The University of Chicago Press.
Bulkley, K. E., & Gottlieb, J. (2017). Policy Images of Teachers: How Influential Actors Construct Images of Teachers. *Teachers College Record*, *119*(4), n4.
Buras, K. (2011). Race, charter schools, and conscious capitalism: On the spatial politics of whiteness as property (and the unconscionable assault on black New Orleans). *Harvard Educational Review*, 81(2), 296-331.
Cannata, M. (2010). Understanding the teacher job search process: Espoused preferences and preferences in use. *Teachers College Record*, 112(12), 2889–2934
Cannata, M., & Engel, M. (2012). Does charter status determine preferences? Comparing the hiring preferences of charter and traditional public school principals. *Education Finance and Policy*, 7, 455-488.
Cano, R. (2018). Thousands of untrained teachers are leading Arizona's public-school classrooms.
Retrieved from https://www.azcentral.com/story/news/local/arizona-education/2018/08/22/arizona-teacher-shortage-thousands-public-schools-untrained/1043860002/
Carver-Thomas, D. & Darling-Hammond, L. (2017). Teacher turnover: Why it matters and what we can do about it. Palo Alto, CA: Learning Policy Institute.
Clotfelter, C., Glennie, E., Ladd, H., & Vigdor, J. (2008). Would higher salaries keep teachers in high-poverty schools? Evidence from a policy intervention in North Carolina. *Journal of Public Economics*, *92*(5-6), 1352-1370.
Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2011). Teacher mobility, school segregation, and pay-based policies to level the playing field. *Education Finance and Policy*, 6(3), 399-438.
Clotfelter, C. T., Ladd, H., Vigdor, J. & Diaz, R. (2006). Do school accountability systems make it more difficult for low-performing schools to attract and retain high-quality teachers? *Journal of Policy Analysis and Management*, 23(2), 251–271.
Coburn, C. E. (2005). Shaping teacher sensemaking: School leaders and the enactment of reading policy. *Educational Policy*, 19(3), 476-509.
Coburn, C. E. (2001). Collective sensemaking about reading: How teachers mediate reading policy in their professional communities. *Educational Evaluation and Policy Analysis*, 23(2), 145-170.
Cochran-Smith, M. (2006). *Policy, practice, and politics in teacher education: Editorials from the Journal of Teacher Education*. Corwin Press.
Cochran-Smith, M., Cannady, M., McEachern, K. P., Piazza, P., Power, C., & Ryan, A. (2010). Teachers' education, teaching practice, and retention: A cross-genre review of recent research. *Journal of Education*, 19-31.
Cochran-Smith, M., & Lytle, S. (2006). Troubling images of teaching in no child left behind. *Harvard Educational Review*, *76*(4), 668-697.
Cochran-Smith, M. & Villegas, A. (2015). Framing teacher preparation research an overview of the field, Part One. *Journal of Teacher Education*, 66(1), 7-20.
Cohen-Vogel, L. (2005). Federal role in teacher quality:" Redefinition" or policy alignment?. *Educational Policy*, 19(1), 18-43.
Cohen-Vogel, L. & Smith, T. (2007). Qualifications and assignments of alternatively certified teachers: Testing core assumptions. *American Educational Research Journal*, 44(3), 732-

753.
Coggshall, J. G., & Sexton, S. K. (2008, May). Teachers on the move: A look at teacher interstate mobility policy and practice. Washington, DC
Cooperman, S., & Klagholz, L. (1985). New Jersey's Alternate Route to Certification. *Phi Delta Kappan, 66*(10), 691-95.
Costrell, R. M., & Podgursky, M. (2009). Peaks, cliffs, and valleys: The peculiar incentives in teacher retirement systems and their consequences for school staffing. *Education Finance and Policy, 4*(2), 175-211.
Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
Curran, B., Abrahams, C., & Clarke, T. (2001, February). Solving teacher shortages through license reciprocity. Retrieved from http:// www.nga.org/cda/files/RECIPROCITY.pdf
D'Amico, D. (2015). "An Old Order Is Passing": The rise of applied learning in university-based teacher education during the Great Depression. *History of Education Quarterly*, 55(3), 319-345.
D'Amico, D., Pawlewicz, R. J., Earley, P. M., & McGeehan, A. P. (2017). Where Are All the Black Teachers? Discrimination in the Teacher Labor Market. *Harvard Educational Review*, 87(1), 26-49.
Daniel, A. (2015, October). "Williams: Texas Must Expand Teacher Pool." *The Texas Tribune*. Retrieved from http://www.texastribune.org/2015/10/17/michael-williams-reflects-his-timetexas-education/
Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education*, 51(3), 166- 173.
Darling-Hammond, L., & Ducommun, C. E. (2007). Recruiting and retaining teachers: What matters most and what can government do. In Washington, DC: Forum for Education and Democracy.
Darling-Hammond, L., Amrein-Beardsley, A., Haertel, E., & Rothstein, J. (2012). Evaluating teacher evaluation. *Phi Delta Kappan*, *93*(6), 8-15.
Darling-Hammond, L., & Sykes, G. (2003). Wanted, a national teacher supply policy for education: The right way to meet the "highly qualified teacher" challenge. *Education Policy Analysis Archives*, 11(33).
DeArmond, M., Gross, B., & Goldhaber, D. (2010). Is it better to be good or lucky? Decentralized teacher selection in 10 elementary schools. *Educational Administration Quarterly*, 46(3), 322-362.
Dee, T. S. (2005). A teacher like me: Does race, ethnicity or gender matter? *American Economic Review*, 95(2), 158–165.
Dee, T. S., & Goldhaber, D. (2017). Understanding and Addressing Teacher Shortages in the United States. The Hamilton Project, April. Retrieved from https://pdfs.semanticscholar.org/05e4/9ddc234dc666b540c20001b89d2958473cc3.pdf
Diamond, J. B., & Spillane, J. P. (2016). School leadership and management from a distributed perspective: A 2016 retrospective and prospective. *Management in Education, 30*(4), 147-154.
Donaldson, M. L. (2013). Principals' approaches to cultivating teacher effectiveness constraints and opportunities in hiring, assigning, evaluating, and developing teachers. *Educational Administration Quarterly*, 49(5), 838–882

Donaldson, M. L., & Johnson, S. M. (2010). The price of misassignment: The role of teaching assignments in Teach for America teachers' exit from low-income schools and the teaching profession. *Educational Evaluation and Policy Analysis*, *32*(2), 299-323.

Donitsa-Schmidt, S., & Zuzovsky, R. (2016). Quantitative and qualitative teacher shortage and the turnover phenomenon. *International Journal of Educational Research*, *77*, 83-91.

Driscoll, L. G., & Watson, J. R. (2014). North Carolina. *Journal of Education Finance*, *39*(3), 273–275.

Dumas, M. J., & Anderson, G. (2014). Qualitative research as policy knowledge: Framing policy problems and transforming education from the ground up. *Education Policy Analysis Archives*, 22(11), n11.

Dumas, M. J., Dixson, A. D., & Mayorga, E. (2016). Educational policy and the cultural politics of race: Introduction to the special issue. *Educational Policy*, 30(1), 3–12.

Earley, P. M., Imig, D. G., & Michelli, N. M. (Eds.). (2011). *Teacher education policy in the United States: Issues and tensions in an era of evolving expectations*. Taylor & Francis.

Egalite, A. J., Kisida, B., & Winters, M. A. (2015). Representation in the classroom: The effect of own- race teachers on student achievement. *Economics of Education Review*, 45, 44-52.

Eger (2018). EPIC charter school now recruiting teachers by boasting pay as high as $106,000. *Tulsa World*. Retrieved from https://www.tulsaworld.com/news/local/education/epic-charter-school-now-recruiting-teachers-by-boasting-pay-as/article_02eb8b2c-9a60-5533-9045-f641a53ac588.html

Eger, A. (2014, March). Tulsa Public Schools looks to Teach for America for help with teacher shortage. *Tulsa World*. Retrieved from https://www.tulsaworld.com/news/local/education/tulsa-public-schools-looks-to-teach-for-america-for-help/article_ea389e66-dd44-532c-90b5-bb83769b7ccf.html

Elfers, A. M., & Plecki, M. L. (2014). Results of a state incentive program on the supply and distribution of National Board Certified Teachers. *Leadership and Policy in Schools*, 13(2), 147-168.

Elmore, R. (2003). Accountability and capacity. In M. Carnoy, R. Elmore, & L. S. Siskin (Eds.), *The new accountability: High schools and high-stakes testing* (pp. 195- 209). New York: Routledge.

Emdin, C. (2016). *For White Folks Who Teach in the Hood and the Rest of Y'all Too: Reality Pedagogy and Urban Education*. Beacon Press, 2016.

Emihovich, C., Dana, T., Vernetson, T., & Colon, E. (2011). Changing standards, changing needs: the gauntlet of teacher education reform. In Earley, P. M., Imig, D. G., & Michelli, N. M. (Eds.). (2011). *Teacher Education Policy in the United States: Issues and Tensions in an Era of Evolving Expectations*. Taylor & Francis.

Endo, R. (2015). How Asian American female teachers experience racial microaggressions from pre-service preparation to their professional careers. *The Urban Review*, *47*(4), 601-625.

Engel, M. (2013). Problematic preferences? A mixed method examination of principals' preferences for teacher characteristics in Chicago. *Educational Administration Quarterly*, 49(1), 52-91.

Engel, M., & Cannata, M. (2015). Localism and teacher labor markets: How geography and decision-making may contribute to inequality. *Peabody Journal of Education*, 90(1), 84-92.

Engel, M., & Curran, F. C. (2016). Toward understanding principals' hiring practices. *Journal of Educational Administration*, 54(2), 173-190.

Engel, M., & Finch, M. A. (2015). Staffing the Classroom: How urban principals find teachers and make hiring decisions. *Leadership and Policy in Schools*, 14(1), 12-41.
Evans, A. E. (2007). School leaders and their sensemaking about race and demographic change. Educational Administration Quarterly, 43(2), 159-188.
Farinde, A. A., Allen, A., & Lewis, C. W. (2016). Retaining Black teachers: An examination of Black female teachers' intentions to remain in K-12 classrooms. *Equity & Excellence in Education*, 49(1), 115-127.
Farinde-Wu, A., & Fitchett, P. G. (2018). Searching for satisfaction: Black female teachers' workplace climate and job satisfaction. *Urban Education*, *53*(1), 86-112.
Feng, L., Figlio, D. N., & Sass, T. (2010). *School accountability and teacher mobility* (No. w16070). National Bureau of Economic Research.
Feng, L., & Sass, T. R. (2018). The Impact of Incentives to Recruit and Retain Teachers in "Hard-to-Staff" Subjects. *Journal of Policy Analysis and Management*, *37*(1), 112-135.
Firestone, W. A., & Pennell, J. R. (1993). Teacher commitment, working conditions, and differential incentive policies. *Review of educational research*, *63*(4), 489-525.
Ford, D. Y. (2012). Culturally different students in special education: Looking backward to move forward. *Exceptional Children*, 78(4), 391-405.
Frankenberg, E. (2009). The segregation of American teachers. *Education Policy Analysis Archives*, 17(1).
Freedman, S. W., & Appleman, D. (2009). "In it for the long haul": How teacher education can contribute to teacher retention in high-poverty, urban schools. *Journal of Teacher Education*, 60(3), 323-337.
Fulbeck, E. S. (2014). Teacher mobility and financial incentives: A descriptive analysis of Denver's ProComp. *Educational Evaluation and Policy Analysis*, 36(1), 67-82.
Fulbeck, E. S., & Richards, M. P. (2015). The impact of school-based financial incentives on teachers' strategic moves: A descriptive analysis. *Teachers College Record*, 117, 1-36
Fuller, E. J., Hollingworth, L., & Pendola, A. (2017). The Every Student Succeeds Act: State efforts to improve access to effective educators, and the importance of school leadership. *Educational Administration Quarterly*, 53(5), 727-756.
Fusarelli, L. D. (2009). Improvement or interference? Reenvisioning the "state" in education reform. In B. S. Cooper & B. C. Fusarelli (Eds.), *Rising state* (pp. 243–270). Albany, NY, NY: SUNY Press.
Gantert, T. (2015) Looming 'Teacher Shortage' Appears Largely Mythical. Retrieved from https://www.michigancapitolconfidential.com/21831
Gándara, P., & Mordechay, K. (2017). Demographic change and the new (and not so new) challenges for Latino education. *The Educational Forum*, 81(2), 148–159.
Gephart Jr, R. P. (1993). The textual approach: Risk and blame in disaster sensemaking. *Academy of Management Journal*, 36(6), 1465-1514.
Gershenson, S., Hart, C., Lindsay, C., & Papageorge, N. W. (2017). The long-run impacts of same-race teachers. Retrieved from http://ftp.iza.org/dp10630.pdf
Gist, C. D. (2016). Voices of aspiring teachers of color: Unraveling the double bind in teacher education. *Urban Education*, 52(8), 927-956.
Gist, C. D., Bianco, M., & Lynn, M. (2019). Examining grow your own programs across the teacher development continuum: Mining research on teachers of color and nontraditional educator pipelines. *Journal of Teacher Education*, 70(1), 13-25.
Glaser, B. G., & Strauss, A. L. (1967). The constant comparative method of qualitative analysis. *The discovery of grounded theory: Strategies for qualitative research*, *101*, 158.

Goff, P. T., & Bruecker, E. M. (2017). The role of place: Labor market dynamics in rural and non-rural school districts (WCER Working Paper No. 2017-X). Retrieved from University of Wisconsin–Madison, Wisconsin Center for Education Research website: http://www.wcer.wisc.edu/publications/working-papers

Goldhaber, D. D., & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis,* 22(2), 129-145.

Goldhaber, D., DeArmond, M., & DeBurgomaster, S. (2011). Teacher attitudes about compensation reform: Implications for reform implementation. *ILR Review*, *64*(3), 441-463.

Goldhaber, D., Gross, B., & Player, D. (2011). Teacher career paths, teacher quality, and persistence in the classroom: Are public schools keeping their best?. *Journal of Policy Analysis and Management*, 30(1), 57-87.

Goldhaber, D., Grout, C., Holden, K. L., & Brown, N. (2015). Crossing the border? Exploring the cross-state mobility of the teacher workforce. *Educational Researcher*, 44(8), 421-431.

Gorski, P. C. (2008). Good intentions are not enough: A decolonizing intercultural education. *Intercultural Education*, 19(6), 515-525.

Griffin, A., & Tackie, H. (2016). Through our eyes: Perspectives and reflections from black teachers. Retrieved from https://edtrust.org/wp- content/uploads/2014/09/ThroughOurEyes.pdf

Grimmett, P. & Young, J. (2012). *Teacher certification and the professional status of teaching in North America: The new battleground for public education*. North Carolina: Information Age Publishing.

Grissom, J. A., & Keiser, L. R. (2011). A supervisor like me: Race, representation, and the satisfaction and turnover decisions of public sector employees. *Journal of Policy Analysis and Management, 30*(3), 557-580.

Grissom, J. A., Nicholson-Crotty, S., & Harrington, J. R. (2014). Estimating the effects of No Child Left Behind on teachers' work environments and job attitudes. *Educational Evaluation and Policy Analysis*, *36*(4), 417-436.

Grissom, J. A., & Redding, C. (2016). Discretion and disproportionality. *AERA Open*, 2(1), 1-25

Grissom, J. A., & Reininger, M. (2012). Who comes back? A longitudinal analysis of the reentry behavior of exiting teachers. *Education Finance and Policy*, 7(4), 425–454.

Grissom, J. A., & Strunk, K. O. (2012). How should school districts shape teacher salary schedules? Linking school performance to pay structure in traditional compensation schemes. *Educational Policy*, *26*(5), 663-695.

Gross, B., & DeArmond, M. (2010). Parallel patterns: Teacher attrition in Charter vs. district schools. Retrieved from http://www.crpe.org/sites/default/files/pub_ ics_Attrition_Sep10_0.pdf

Guarino, C. M., Brown, A. B., & Wyse, A. E. (2011). Can districts keep good teachers in the schools that need them most?. *Economics of Education Review*, 30(5), 962-979.

Guarino, C. M., Santibanez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, 76(2), 173-208.

Hansen, M. (2018). Which States Might Experience the Next Wave of Teacher Strikes? Brookings. Retrieved from https://www.brookings.edu/blog/brown-center-chalkboard/2018/04/13/which-states-might-experience-the-next-wave-of-teacher-strikes/

Hansen, M., Backes, B., & Brady, V. (2016). Teacher attrition and mobility during the Teach for America clustering strategy in Miami-Dade County Public Schools. *Educational Evaluation and Policy Analysis*, *38*(3), 495-516.

Hanushek, E. A., Kain, J. F., O'Brien, D. M., & Rivkin, S. G. (2005). The market for teacher quality. National Bureau of Economic Research Working Paper 11154. Retrieved from http://www.nber.org/papers/w11154.pdf

Hanushek, E. A., and S. G. Rivkin (2012). The distribution of teacher quality and implications for policy," *Annu. Rev. Econ*, 4, 131–157.

Harris, D. N., Rutledge, S. A., Ingle, W. K., & Thompson, C. C. (2010). Mix and match: What principals really look for when hiring teachers. *Education Finance and Policy*, 5, 228-246.

Harris, D. N., & Sass, T. R. (2011). Teacher training, teacher quality and student achievement. *Journal of Public Economics*, 95(7), 798-812.

Hendricks, M.D. (2015). An empirical analysis of teacher salaries and labor market outcomes in Oklahoma. Oklahoma Business & Education Coalition. Retrieved from https://www.ossba.org/wp-content/uploads/2015/11/Teacher_Pay_FINAL_revised_cw.pdf

Hendricks, M.D. (2014). Does it pay to pay teachers more? Evidence from Texas. *Journal of Public Economics*, 109, 50- 63.

Henry, G. T., & Redding, C. (2018). The consequences of leaving school early: The effects of within-year and end-of-year teacher turnover. *Education Finance and Policy*, 1-52.

Hogg, M. A. (2000). 'Subjective uncertainty reduction through self-categorization: a motivational theory of social identity processes.' In W. Stroebe and M. Hewstone (eds). *European Review of Social Psychology*,11, pp. 223–255.

Holme, J. J., Jabbar, H., Germain, E., & Dinning, J. (2018). Rethinking teacher turnover: Longitudinal measures of instability in schools. *Educational Researcher*, 47(1), 62-75.

Holme, J. J., & Rangel, V. S. (2012). Putting school reform in its place: Social geography, organizational social capital, and school performance. *American Educational Research Journal*, 49(2), 257-283.

Holt, S. B., & Gershenson, S. (2015). The impact of teacher demographic representation on student attendance and suspensions. IZA Discussion Papers, No. 9554, Institute for the Study of Labor (IZA), Bonn. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2708367

Horng, E. L. (2009). Teacher tradeoffs: Disentangling teachers' preferences for working conditions and student demographics. *American Educational Research Journal*, 46(3), 690-717.

Horng, E. L., Klasik, D., & Loeb, S. (2010). Principal's time use and school effectiveness. *American Journal of Education, 116*(4), 491-523.

Horsford, S. D., Scott, J. T., & Anderson, G. L. (2018). *The politics of education policy in an era of inequality: Possibilities for democratic schooling*. Routledge.

Hough, H.J. (2012). Salary incentives and teacher quality: The effect of a district-level salary increase on teacher retention. Center for Education Policy Analysis. Palo Alto, CA.

Imazeki, J. (2005). Teacher salaries and teacher attrition: How much is enough? *Economics of Education Review*, 24, 431–449

Imig, S., & Smith, R. (2013). *Listening to those on the front lines: North Carolina teachers and administrators respond to state legislative changes*. Wilmington, NC. Retrieved from http://people.uncw.edu/imigs/documents/smithimigreport.pdf

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational

analysis. *American Educational Research Journal*, 38(3), 499-534.
Ingersoll, R., & May, H. (2016). Minority Teacher Recruitment, Employment, and Retention: 1987 to 2013. Learning Policy Institute, Stanford, CA. Retrieved from https://learningpolicyinstitute.org/sites/default/files/product-files/Minority_Teacher_Recruitment_Employment_Retention%20_BRIEF.pdf
Ingersoll, R. M., & May, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis*, 34(4), 435-464.
Ingersoll, R., & Merill, L. (2017). A quarter century of changes in the elementary and secondary teaching force: From 1987 to 2012. Washington, D.C.: National Center for Educational Statistics. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017092
Ingle, K., Rutledge, S., & Bishop, J. (2011). Context matters: Principals' sensemaking of teacher hiring and on-the-job performance. *Journal of Educational Administration*, 49, 579-610.
Irby, D. J. (2018). Mo'data, mo'problems: making sense of racial discipline disparities in a large diversifying suburban high school. *Educational Administration Quarterly*, *54*(5), 693-722.
Irizarry J., & Donaldson, M. L. (2012). Teach for America: The Latinization of US schools and the critical shortage of Latina/o teachers. *American Educational Research Journal*, 49(1), 155-194.
Jackson, C. K. (2012). School competition and teacher labor markets: Evidence from charter school entry in North Carolina. *Journal of Public Economics*, *96*(5-6), 431-448.
Jabbar, H. (2017). Recruiting "Talent": School choice and teacher hiring in New Orleans. *Educational Administration Quarterly*, *54*(1), 115-151.
Jessop, B., & Oosterlynck, S. (2008). Cultural political economy: On making the cultural turn without falling into soft economic sociology. *Geoforum*, *39*(3), 1155-1169.
Johnson, S.M., Berg, J.H., & Donaldson, M.L. (2005). Who stays in teaching and why: A review of the literature on teacher retention. Cambridge, MA: The Project on the Next Generation of Teachers. Harvard Graduate School of Education
Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teachers College Record*, 114(10), 1-39.
Kalleberg, A. L. (2009). Precarious work, insecure workers: Employment relations in transition. *American Sociological Review*, 74(1), 1-22.
Kalleberg, A. L. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s-2000s*. Russell Sage Foundation.
Kalogrides, D., Loeb, S., & Béteille, T. (2013). Systematic sorting teacher characteristics and class assignments. *Sociology of Education*, 86(2), 103-123.
Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2008). What does certification tell us about teacher effectiveness? Evidence from New York City. *Economics of Education Review*, 27(6), 615-631.
Kelchtermans, G. (2017). 'Should I stay or should I go?': unpacking teacher attrition/retention as an educational issue. *Teachers and Teaching*, 23(8), 961-977.
Kersaint, G., Lewis, J., Potter, R., & Meisels, G. (2007). Why teachers leave: Factors that influence retention and resignation. *Teaching and Teacher Education*, 23(6), 775-794.
Khalifa, M. A., Gooden, M. A., & Davis, J. E. (2016). Culturally responsive school leadership: A synthesis of the literature. *Review of Educational Research*, 86(4), 1272-1311.
Killeen, K., Loeb, S., & Williams, I. (2015). A double draw of proximity: The importance of

geography in teacher application and hiring decisions. Stanford Center for Education Policy analysis. Retrieved from https://cepa.stanford.edu/content/double-draw-proximity-importance-geography-teacher-application-and-hiring-decisions
Kincheloe, J. (2005). *Critical constructivism*. NY: Peter Lang
Koedel, C., Mihaly, K., & Rockoff, J. E. (2015). Value-added modeling: A review. *Economics of Education Review, 47*, 180-195.
Kohli, R. (2018). Behind school doors: The impact of hostile racial climates on urban teachers of color. *Urban Education*, 53(3), 307-333.
Kolbe, T., & Strunk, K. O. (2012). Economic incentives as a strategy for responding to teacher staffing problems: A typology of policies and practices. *Educational Administration Quarterly*, *48*(5), 779-813.
Koro-Ljungberg, M., Yendol-Hoppey, D., Smith, J.J., & Hayes, S.B. (2009). (E)pistemological awareness, instantiation of methods, and uniformed methodological ambiguity in qualitative research projects. *Educational Research*, 38 (9), 687-699
Kretchmar, K., Sondel, B., & Ferrare, J. J. (2018). The power of the network: Teach for America's impact on the deregulation of teacher education. *Educational Policy*, *32*(3), 423-453.
Kretchmar, K., & Zeichner, K. (2016). Teacher prep 3.0: A vision for teacher education to impact social transformation. *Journal of Education for Teaching*, *42*(4), 417-433.
Krieg, J. M., Theobald, R., & Goldhaber, D. (2016). A Foot in the Door Exploring the Role of Student Teaching Assignments in Teachers' Initial Job Placements. *Educational Evaluation and Policy Analysis*, 38(2), 364-388.
Kumashiro, K. (2010). Seeing the bigger picture: Troubling movements to end teacher education. *Journal of Teacher Education*, 61(1-2), 56-65.
Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research Interviewing.* 2nd ed. Thousand Oaks, CA: Sage Publications.
Labaree, D. F. (2004). *The trouble with Ed schools*. New Haven, CT: Yale University Press
Ladd, H. (2011). Teachers' perceptions of their working conditions: How predictive of planned and actual teacher movement? *Educational Evaluation and Policy Analysis*, 33(2), 235-261.
Leachman, M., & Mai, C. (2014). Most states funding schools less than before the recession. Center on Budget and Policy Priorities. Retrieved from http://www.cbpp.org/cms/?fa=view&id=4011
Leithwood, K., & Jantzi, D. (2005). A review of transformational school leadership research 1996–2005. *Leadership and policy in schools*, *4*(3), 177-199.
Lenarduzzi, G. P. (2015). Critical incident effects on principals: Using school closure as the context. *Educational Management Administration & Leadership*, *43*(2), 253-268.
Lindsay, J., Wan, Y., Berg-Jacobson, A., Walston, J., & Redford, J. (2016). Strategies for Estimating Teacher Supply and Demand Using Student and Teacher Data. REL 2017-197. Regional Educational Laboratory Midwest. Retrieved from https://eric.ed.gov/?id=ED570977
Lipman, P. (2013). *The new political economy of urban education: Neoliberalism, race, and the right to the city*. Taylor & Francis.
Liu, E., & Johnson, S. M. (2006). New teachers' experiences of hiring: Late, rushed, and information-poor. *Educational Administration Quarterly*, 42(3), 324-360.
Liu, E., Rosenstein, J. G., Swan, A. E., & Khalil, D. (2008). When districts encounter teacher

shortages: The challenges of recruiting and retaining mathematics teachers in urban districts. *Leadership and Policy in Schools*, 7(3), 296-323.
Loeb, S., Kalogrides, D., & Béteille, T. (2012). Effective schools: Teacher hiring, assignment, development, and retention. *Education Finance and Policy*, *7*(3), 269-304.
Loeb, S., Kalogrides, D., & Horng, E. L. (2010). Principal preferences and the uneven distribution of principals across schools. *Educational Evaluation and Policy Analysis*, 32(2), 205–229.
Loeb, S., & Miller, L. C. (2006). *A review of state teacher policies: What are they, what are their effects, and what are their implications for school finance?* Institute for Research on Education Policy & Practice (IREPP). Retrieved from https://www.researchgate.net/profile/Susanna_Loeb/publication/242589579_A_Review_of_State_Teacher_Policies_What_Are_They_What_Are_Their_Effects_and_What_Are_Their_Implications_for_School_Finance/links/55f4f9c108ae7a10cf88fa2d/A-Review-of-State-Teacher-Policies-What-Are-They-What-Are-Their-Effects-and-What-Are-Their-Implications-for-School-Finance.pdf
Loeb, S., Miller, L., & Wyckoff, J. (2015). Performance screens for school improvement: The case of teacher tenure reform in New York City. *Educational Researcher*, *44*(4), 199–212.
Madkins, T. C. (2011). The black teacher shortage: A literature review of historical and contemporary trends. *The Journal of Negro Education*, 417-427.
Maitlis, S. (2005). The social processes of organizational sensemaking. *Academy of management journal*, *48*(1), 21-49.
Maitlis, S., & Christianson, M. (2014). Sensemaking in organizations: Taking stock and moving forward. *Academy of Management Annals*, *8*(1), 57-125.
Malen, B. (2003). Tightening the grip? The impact of state activism on local school systems. Educational Policy, 17(2), 195-216.
Malin, J. (2016). The prediction of states'Pk-12 funding effort and distribution based on their ideological makeups. *Journal of Education Finance*, 42(2), 220- 242
Marinell, W. H., & Coca, V. M. (2013). " Who Stays and Who Leaves?" Findings from a Three-Part Study of Teacher Turnover in NYC Middle Schools. Retrieved from http://files.eric.ed.gov/fulltext/ED540818.pdf
Martino, W., & Rezai-Rashti, G. M. (2010). Male teacher shortage: Black teachers' perspectives. *Gender and Education*, 22(3), 247-262.
Mason, R. W., & Schroeder, M. P. (2010). Principal hiring practices: Toward a reduction of uncertainty. *The Clearing House*, 83(5), 186-193.
McLeskey, J., & Billingsley, B. S. (2008). How does the quality and stability of the teaching force influence the research-to-practice gap? A perspective on the teacher shortage in special education. *Remedial and Special Education*, *29*(5), 293-305.
Mcleskey, J., Tyler, N. C., & Flippin, S. S. (2004). The supply of and demand for special education teachers: A review of research regarding the chronic shortage of special education teachers. T*he Journal of Special Education*, 38(1), 5–21
Merriam, S. B., Johnson-Bailey, J., Lee, M. Y., Kee, Y., Ntseane, G., & Muhamad, M. (2001). Power and positionality: Negotiating insider/outsider status within and across cultures. *International Journal of Lifelong Education*, 20(5), 405-416.
Meyer, A. D. (1982). Adapting to environmental jolts. *Administrative Science Quarterly*, 27(4), 515–537.

Milanowski, A., & Kimball, S. (2010). The principal as human capital manager: Lessons from the private sector. *Teaching talent: A visionary framework for human capital in education*, 69-90.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook.* Thousand Oaks, California.

Milliken, F. J. (1990). Perceiving and interpreting environmental change: An examination of college administrators' interpretation of changing demographics. *Academy of Management Journal*, 33(1), 42–63.

Mills, J. H. (2003). *Making Sense of Organizational Change*. Routledge, London, UK.

Mills, J.H., Thurlow, A., & Mills, A. J. (2010). Making sense of sensemaking: the critical sensemaking approach. *Qualitative Research in Organizations and Management: An International Journal*, 5(2), 182-195.

Milner, H. R. (2012). But what is urban education? *Urban Education*, 47(3), 556–561.

Milner, H. R., IV. (2007). Race, culture, and researcher positionality: Working through dangers seen, unseen, and unforeseen. *Educational Researcher*, 36, 388-400

Milner, H. R., & Howard, T. C. (2013). Counter-narrative as method: race, policy and research for teacher education. *Race, Ethnicity, and Education*, 16(4), 536-561.

Minarik, M. M., Thornton, B., & Perreault, G. (2003). Systems thinking can improve teacher retention. *The Clearing House*, 76(5), 230-234.

Minnici, A. (2014). The mind shift in teacher evaluation: Where we stand--and where we need to go. *American Educator*, *38*(1), 22-26.

Mungal, A. S. (2016). Teach for America, Relay Graduate School, and the Charter School Networks: The Making of a Parallel Education Structure. *Education Policy Analysis Archives*, 24(17), n17.

Mungal, A. S. (2015). Hybridized teacher education programs in NYC: A missed opportunity?. *Education Policy Analysis Archives*, 23, 89.

Murnane, R. J., & Olsen, R. J. (1990). The effects of salaries and opportunity costs on length of stay in teaching: Evidence from North Carolina. *The Journal of Human Resources*, *25*(1), 106–124.

Murphy, P., DeArmond, M., & Guin, K. (2003). A national crisis or localized problems? Getting perspective on the scope and scale of the teacher shortage. *Education Policy Analysis Archives*, *11*, 23.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform: A report to the Nation and the Secretary of Education, United States Department of Education*. Washington, D.C.: Author

National Council of Education Statistics (2014a). Teacher attrition & mobility: Results from the 2012-2013 Teacher follow up
survey. Retrieved from https://nces.ed.gov/pubs2014/2014077.pdf

NCES (2014b). Table A.1.a.-2 Number of public elementary and secondary schools, by school urban-centric 12-category locale and state or jurisdiction: 2013–14. Retrieved from https://nces.ed.gov/surveys/ruraled/districts.asp

NCES (2013). Digest of Education Statistics. Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and region: Selected years, fall 1995 through fall 2023
Retrieved from https://nces.ed.gov/programs/digest/d13/tables/dt13_203.50.asp

Newberry, M., & Allsop, Y. (2017). Teacher attrition in the USA: the relational elements in a Utah case study. *Teachers and Teaching*, *23*(8), 863-880.

Ng, J. & Peter, L. (2010). Should I stay or should I go? Examining the career choices of alternatively licensed teachers in urban schools. *Urban Review: Issues and Ideas in Public Education*, 42(2), 123-142.

Nguyen, T. D. (2018). *The Theories and Determinants of Teacher Attrition and Retention*. Doctoral Dissertation. Vanderbilt University.

Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2017). *Human resource management: Gaining a competitive advantage*. New York, NY: McGraw-Hill Education.

NVivo (2018). Automatically detect and code sentiment. Retrieved from https://help-nv.qsrinternational.com/12/win/v12.1.84-d3ea61/Content/coding/auto-detect-code-sentiment.htm

Odden, A. R. (2011). Strategic management of human capital in education: Improving instructional practice and student learning in schools. Routledge.

Oklahoma State Department of Education (OSDE) (2018). Oklahoma Educator Supply and Demand Report: Trends, projections and recommendations. Retrieved from https://sde.ok.gov/sites/default/files/documents/files/Oklahoma%20Teacher%20Supply%20and%20Demand%20Report%202018%20February%20Update.pdf

Oklahoma State Department of Education (OSDE) (2016a). Hofmeister Applauds Governor's Approval of Bills Addressing Teacher Shortages. Retrieved from http://www.sde.ok.gov/sde/newsblog/2016-05-31/hofmeister-applauds-governor%E2%80%99s-approval-bills-addressing-teacher-shortage

Oklahoma State Department of Education (2014). Teacher certification paths. Retrieved from https://sde.ok.gov/teacher-certification-paths

Oklahoma State School Boards Association [OSSBA], 2017). Oklahoma's Teacher Shortage Deepens. Retrieved from https://www.ossba.org/2017/08/22/oklahomas-teacher-shortage-deepens/

Olsen, B., & Anderson, L. (2007). Courses of Action A Qualitative Investigation Into Urban Teacher Retention and Career Development. Urban Education, 42(1), 5-29

Papa Jr, F., & Baxter, I. (2008). Hiring teachers in New York's public schools: Can the principal make a difference?. *Leadership and Policy in Schools*, *7*(1), 87-117.

Papay, J. P., & Kraft, M. A. (2016). The productivity costs of inefficient hiring practices: Evidence from late teacher hiring. *Journal of Policy Analysis and Management*, *35*(4), 791-817.

Pearson, L. C., & Moomaw, W. (2005). The relationship between teacher autonomy and stress, work satisfaction, empowerment, and professionalism. *Educational Research Quarterly*, *29*(1), 38-54.

Player, D., Youngs, P., Perrone, F., & Grogan, E. (2017). How principal leadership and person-job fit are associated with teacher mobility and attrition. *Teaching and Teacher Education*, *67*, 330-339.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage

Perry (2019). Severe education funding cuts threaten Oklahoma's economic future. Retrieved from https://okpolicy.org/severe-education-funding-cuts-threaten-oklahomas-economic-future/

Podgursky, M., Monroe, R., & Watson, D. (2004). The academic quality of public school teachers: An analysis of entry and exit behavior. *Economics of Education Review*, *23*(5), 507-518.

Pollock, K. (2015). The New "New Teacher". *The Complexity of Hiring, Supporting, and Retaining New Teachers Across Canada*, 91.

Rebore, R. W. (2007). *Human resources administration in education: A management approach* (8th ed.). Boston: Allyn & Bacon.

Redding, C., & Smith, T. M. (2016). Easy in, Easy out: Are alternatively certified teachers turning over at increased rates?. *American Educational Research Journal*, 53(4), 1086-1125.

Reininger, M. (2012). Hometown disadvantage? It depends on where you're from: Teachers' location preferences and the implications for staffing schools. *Educational Evaluation and Policy Analysis*, 34(2), 127-145.

Renzulli, L. A., Parrott, H. M., & Beattie, I. R. (2011). Racial mismatch and school type teacher satisfaction and retention in charter and traditional public schools. *Sociology of Education*, 84(1), 23-48.

Rice, J. K., Roellke, C., Sparks, D., & Kolbe, T. (2008). Piecing together the teacher policy landscape: A policy-problem typology. *Teachers College Record*, 111(2), 511-546.

Rigby, J. G. (2015). Principals' sensemaking and enactment of teacher evaluation. *Journal of Educational Administration*, 53(3), 374-392.

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50(1), 4–36.

Rutledge, S. A., Harris, D. N., & Ingle, W. K. (2009). How principals "bridge and buffer" the new demands of teacher quality and accountability: A mixed-methods analysis of teacher hiring. *American Journal of Education*, *116*(2), 211-242.

Rutledge, S., Harris, D., Thompson, C., & Ingle, K. (2008). Certify, blink, hire: An examination of the process and tools of teacher screening and selection. *Leadership and Policy in Schools*, 7, 237-263.

Rynes, S. L., & Barber, A. E. (1990). Applicant attraction strategies: An organizational perspective. *Academy of management review*, *15*(2), 286-310.

Salem, I. E. B. (2015). Transformational leadership: Relationship to job stress and job burnout in five-star hotels. *Tourism and Hospitality Research*, *15*(4), 240-253.

Sanchez, S. Freeman, R. & Martin, P. (2018). Stressed, overworked, and not sure whom to trust: The impacts of recent immigration enforcement on our public school educators. UCLA Civil Rights Project. Retrieved from https://www.civilrightsproject.ucla.edu/research/k-12-education/immigration-immigrant-students/stressed-overworked-and-not-sure-whom-to-trust-the-impacts-of-recent-immigration-enforcement-on-our-public-school-educators/summary-2_sanchez-freeman-martin_ImmigEnforcement.pdf

Sand, L. (2017). The teacher shortage myth. Retrieved from https://www.city-journal.org/html/teacher-shortage-myth-15440.html

Santoro, D. A. (2011). Good teaching in difficult times: Demoralization in the pursuit of good work. *American Journal of Education*, *118*(1), 1-23.

Sass, T. R. (2015). Licensure and worker quality: A comparison of alternative routes to teaching. *The Journal of Law and Economics*, 58(1), 1-35.

Scafidi, B., Sjoquist, D. L., & Stinebrickner, T. R. (2007). Race, poverty, and teacher mobility. *Economics of Education Review*, *26*(2), 145-159.

Schierup, C. U., & Jørgensen, M. B. (2016). An introduction to the special issue. Politics of precarity: Migrant conditions, struggles and experiences. *Critical Sociology*, *42*(7-8), 947-958.

Scribner, J. P., & Heinen, E. (2009). Alternative teacher certification: A program theory analysis. Teacher Education Quarterly, 36(2), 179-197.

Simon, S., & Johnson, S. (2015). Teacher turnover in high-poverty schools: What we know and

can do. Teachers College Record, 117, 1-36.
Sleeter, C. E. (2017). Critical race theory and the whiteness of teacher education. *Urban Education*, *52*(2), 155-169.
Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover?. *American Educational Research Journal*, 41(3), 681-714.
Spence, M. (1978). Job market signaling. In *Uncertainty in Economics* (pp. 281-306). Academic Press.
Spillane, J. P., Diamond, J. B., Burch, P., Hallett, T., Jita, L., & Zoltners, J. (2002). Managing in the middle: School leaders and the enactment of accountability policy. *Educational Policy*, 16(5), 731-762.
Spillane J.P, Halverson R., & Diamond J. (2004). Towards a theory of leadership practice: a distributed perspective. *Journal of Curriculum Studies.* 36 (1), 3-34.
Spillane, J. P., Reiser, B. & Reimer, T. (2002). Policy Implementation and Cognition: Reframing and Refocusing Implementation Research. *Review of Educational Research*, 72 (3): 387–431.
Springer, M. G., Swain, W. A., & Rodriguez, L. A. (2016). Effective teacher retention bonuses: Evidence from Tennessee. *Educational Evaluation and Policy Analysis*, *38*(2), 199-221.
Standing, G. (2011). *The precariat. The new dangerous class.* Bloomsbury Academic, London.
Strauss, V. (2017 May). In Arizona, teachers can now be hired with absolutely no training in how to teach. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/answer-sheet/wp/2017/05/14/in-arizona-teachers-can-now-be-hired-with-absolutely-no-training-in-how-to-teach/?noredirect=on&utm_term=.7666995d5afe
Strauss, R. P., Bowes, L. R., Marks, M. S., & Plesko, M. R. (2000). Improving teacher preparation and selection: Lessons from the Pennsylvania experience. *Economics of Education Review*, 19, 387-415.
Strunk, K. O., Cowen, J. M., Goldhaber, D., Marianno, B. D., Kilbride, T., & Theobald, R. (2018). It is in the contract: How the policies set in teachers' unions' collective bargaining agreements vary across states and districts. *Educational Policy*, *32*(2), 280-312.
Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching? Teacher supply, demand, and shortages in the US. Washington, DC: Learning Policy Institute. Retrieved from https://learningpolicyinstitute. org/sites/default/files/product-files/A_Coming_Crisis_in_Teaching_REPORT. pdf.
Taie, S., & Goldring, R. (2017). Characteristics of public elementary and secondary school principals in the United States: Results from the 2015–16 National Teacher and Principal Survey First Look. (NCES 2017-070). Washington, DC: National Center for Education Statistics, U.S. Department of Education.
Theobald, P. (2005). Urban and rural schools: Overcoming lingering obstacles. *Phi Delta Kappan*, *87*(2), 116-122.
Torres, A. C. (2016). Is this work sustainable? Teacher turnover and perceptions of workload in charter management organizations. *Urban Education*, 14, 1-24.
Tyack, D. (1974). *The one best system: A history of American urban education*. Cambridge, MA: Harvard University Press
U.S. Department of Education (USDOE) (2018). Title II. Higher Education Act. Oklahoma. Retrieved from https://title2.ed.gov/Public/Report/StateHome.aspx
U.S. Department of Education (USDOE) (2016a), Teacher Shortage Areas Nationwide Listing

1990–1991 through 2016–2017. Retrieved from https://www2.ed.gov/about/offices/list/ope/pol/tsa.pdf
USDOE. (2016b). The state of racial diversity in the educator workforce. Retrieved from https://www2.ed.gov/rschstat/eval/highered/racial-diversity/state-racial-diversity-workforce.pdf
Uro, G., & Barrio, A. (2013). *English Language Learners in America's Great City Schools: Demographics, Achievement, and Staffing.* Washington DC: Council of Great City Schools.
Vergari, S. (2012). The limits of federal activism in education policy. *Educational Policy, 26*(1), 15-34.
Vosko, L. F. (2010). *Managing the margins: Gender, citizenship, and the international regulation of precarious employment*. Oxford University Press.
Walsh, K. (2001). Teacher certification reconsidered: Stumbling for quality. Baltimore: The Abell Foundation.
Watson, D. (2011). "Urban, but not too urban": Unpacking teachers' desires to teach urban students. *Journal of Teacher Education*, 62(1), 23-34.
Weaver-Hightower, M. B. (2008). An ecology metaphor for educational policy analysis: A call to complexity. *Educational Researcher*, 37(3), 153-167.
Weick, K., Sutcliffe, K., & Obstfeld, D. A. V. I. D. (2009). Organizing and the process of sensemaking. *Handbook of Decision Making*, 16(4), 83.
Weick, K (1995). *Sensemaking in Organizations*. Sage Publications, Thousand Oaks, CA
Weick, K. E. (1993). The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative Science Quarterly*, 38(4), 628–652
Wells A. S. (2014). Seeing past the "colorblind" myth: Why education policymakers should address racial and ethnic inequality and support culturally diverse schools. Boulder, CO: National Education Policy Center. Retrieved from http://nepc.colorado.edu/publication/seeing-past-the-colorblind-myth
Wenner, J. A., & Campbell, T. (2017). The theoretical and empirical basis of teacher leadership: A review of the literature. *Review of educational research*, *87*(1), 134-171.
White, T. (2018). Teachers of Color and Urban Charter Schools: Race, School Culture, and Teacher Turnover in the Charter Sector. *Journal of Transformative Leadership & Policy Studies*, 7(1), 27-42.
White, T. (2016). Teach for America's paradoxical diversity initiative: Race, policy, and Black teacher displacement in urban public schools. *Education Policy Analysis Archives*, 24(6).
Wilson, S. M., Darling-Hammond, L., & Berry, B. (2001). A Case of Successful Teaching Policy: Connecticut's Long-Term Efforts to Improve Teaching and Learning. A Research Report. Retrieved from https://files.eric.ed.gov/fulltext/ED475448.pdf
Wilson, S., & Ebert, N. (2013). Precarious work: Economic, sociological and political perspectives. *Economic and Labour Relations Review.* 24(3): 263–278
Wrabel, S. L., Saultz, A., Polikoff, M. S., McEachin, A., & Duque, M. (2018). The politics of elementary and secondary education act waivers. *Educational Policy*, *32*(1), 117-140.
Wronowski, M., & Urick, A. (2019). Teacher and school predictors of teacher deprofessionalization and demoralization in the United States. *Educational Policy*, 1-42
Yin, R. K. (2013). *Case study research: Design and methods*. Sage publications.
Young, I. P., & Delli, D. A. (2002). The validity of the teacher perceiver interview for predicting performance of classroom teachers. *Educational Administration Quarterly*, *38*(5), 586-612.

Zeichner, K., & Pena-Sandoval, C. (2015). Venture philanthropy and teacher education policy in the U.S: The role of the new schools venture fund. *Teachers College Record,* 117(6), 1-44.

Zhang, G., & Zeller, N. (2016). A longitudinal investigation of the relationship between teacher preparation and teacher retention. Teacher Education Quarterly, 43(2), 73-73.

Zong, J., Soto, A. G. R., Batalova, J., Gelatt, J., & Capps, R. (2017). A profile of current DACA recipients by education, industry, and occupation. *Migration Policy Institute*. Retrieved from https://www.migrationpolicy.org/research/profile-current-daca-recipients-education-industry-and-occupation